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SECTION ON PRACTICE OF MEDICINE.

CHAIRMAN'S ADDRESS—A REVIEW OF ULCERATIVE ENDOCARDITIS.

Read before the Section of Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association, held in Milwaukee, Wis., June, 1893.

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Gentlemen:—To begin with, let me thank you for the very great honor that you have done me in electing me your chairman, and also for the ready assent that many of you have given to read papers and to take part in the discussions at this meeting. Your estimable secretary, Dr. Webster, and your chairman have done their best to provide a program that should be of interest to the Section and a profit to the profession, and it is to be hoped that before the conclusion of the session the members will congratulate each other upon the good work that has been accomplished.

In turning to the matter of the address which the chairman, by the requirement of our by-laws, must read before the Section, it has seemed to me better to select a single topic that is likely to be of general interest, rather than to make the vain attempt of reviewing the progress made in internal medicine throughout its wide field. Therefore, as a subject that seems to be as yet very unfinished, and one that has received, and yet will receive much careful study, and one that is likely to provoke differences of opinions, and perhaps interesting discussion, I have selected ulcerative endocarditis and its relations to other inflammations of the endocardium. Only a few years have passed away since the profession was content to say of endocarditis that it was a simple inflammation of the lining membrane of the heart, generally the result of rheumatism. After the appearance of Osler's classical lectures in 1885, it became clear that in some cases at least, the disease was special, and so arose the custom of speaking of simple endocarditis, acute and chronic, and malignant or ulcerative endocarditis. The extremes of this position as a result of further study, have gradually approached each other, until it seems proper to efface the separating line, and to speak of the inflammations of the endocardium not merely as one process, nor as two processes. but as the results of a great variety of specific diseases which express themselves—sometimes by hyperæmia swelling, and connective tissue proliferation, sometimes by vegetations, sometimes by loss of substance and sometimes by combinations of these processes.

Apparently the time has come for abandonment of the term simple endocarditis as a really distinctive term. True, we can not always say just what special infection is at work, nor can we always discover the path of the invading organisms; but that, we perceive, is unnecessary, since many bacteria remain latent, dormant tenants of the body until the powers of resistance are depressed by some purely incidental influence or affection, upon which the parasites finding the individual no longer refractory, are able to reproduce themselves, and take on hurtful attributes, of which formerly they were not possessed. They naturally select a convenient and fertile soil, and while they occasionally find this in the lungs, liver, spleen, kidneys, the meninges, and the serous coverings of joints, they not infrequently find in the tissues of the endocardium the most appropriate field for their manifestations.

This view of the matter is substantiated by bedside studies and by experiments upon animals, and is apparently satisfactory except when the acknowledged intimate relationship between rheumatism and endocarditis comes up for settlement.

With this rheumatism question there is undoubtedly a difficulty, and it will not be removed until we are able to explain the nature of rheumatism. If we adopt the theory of rheumatism, the cloud becomes dissipated, but if we still cling to the chemical theory of Prout, or the nervous theory of Mitchell, we can not maintain that endocarditis is always infectious. Time and space forbid an adequate discussion of this matter here, but the opinion is offered that while undoubtedly specially favored by certain conditions of the fluids of the body, and exposure to cold and damp, and by unknown hereditary influences, true rheumatic fever can be accounted for better on the supposition that it is an infectious disease than by any other hypothesis so far constructed. Of the irregular, atypical and more chronic forms of the disease it may be said that many of these are not rheumatism at all. No one can safely claim that the arthritis of gonorrhœa, scarlatina or dysentery are rheumatic, but how many other specific arthropathies are thus summarily disposed of we do not know. Before leaving this part of the subject, some allusion should be made to endocarditis arising apparently as a direct result of gout, Bright's disease, etc. In such cases it is difficult to determine that the heart involvement is owing to the diseases in question unaided by other factors. Very likely the circulating ptomaines resulting from Bright's, and the nitrogenous waste products belonging to gout may lead to changes in the heart as they do in the arteries. Whatever will produce endarteritis may produce endocarditis. But it is highly probable that this chemical abnormality of the blood is potent in a second way; that is, in making the tissues more vulnerable to other and special influences. We are not in a position to deny that the chemical faults alone are competent to induce the affection; experience leads us rather to affirmation. Still, we are not able to say in a given

case that the toxæmia has not reinforced, rather, and made potential the microbic parasites of the body. And now to ascend from the level of personal opinion it may be held that, in view of facts in our possession, endocarditis is a condition which may arise from any one of a multiplicity of special causes under favorable conditions, and that in its course it may be as variable as the causes are dissimilar.

It will be seen that all forms of endocarditis bear an intimate relation to each other, and that their causes are somewhat interpendent. Nevertheless, it is evident that certain classes of endocarditis are prone to cell proliferations with subsequent adhesions, contractions and further deformities, while others are characterized by ulcerations, soft vegetations and resulting embolic infection, accompanied by severe and somewhat constant constitutional disturbances, and usually having a fatal termination. And so has come about a natural, although somewhat imperfect division of the subject into two classes, one having malignant tendencies and the other not. The former class, with which this paper particularly deals, is now commonly described as ulcerative endocarditis; but the term is faulty for the reason that ulceration may occur in cases following a benign course. The whole matter is too recent for positive assertion.

Cases of ulcerative or malignant endocarditis, depend upon the presence of one or more of a variety of microörganisms. These generally attack the heart as a result of some preceding affection, cardiac or otherwise, and for the most part are capable of exercising their special influence upon various parts of the body.

Of the special causes of endocarditis above alluded to, some excite the disease in a malignant form, and generally induce ulcerative processes. It is of these that I particularly have to speak. We know that it is no longer correct to regard these cases as identical in nature, and the suspicion, first suggested by clinical study, that the cases were open to a kind of classification has been justified by bacteriological investigations. Indeed, certain forms of microörganism have apparently the faculty of inducing endocarditis when introduced into the healthy organism, and a number which have been isolated and cultivated are regarded as special to this form of disease, not having been encountered in other affections.

Weichselbaum has discovered four such, which he calls respectively: *bacillus endocarditis griseux; bacillus endocarditis rugatus; bacillus endocarditis capsulatus;* and a fourth form which he has neither named nor succeeded in cultivating.

Fraenkel and Saenger have described a motionless fœtid bacillus endocarditis, and Lion and Girode have isolated still another.

Josserand and Roux have found a peculiar staphylococcus larger than the aureus, and Vetti has isolated a septic diplococcus and a micrococcus in cases of this disease.

The *bacillus coli communis* has been found the active agent in the development of several cases of ulcerative endocarditis. Indeed, the *bacillus endocarditis griseux* of Weichselbaum, and the *bacillus endocarditis* of Gilbert and Lion, which have been considered as special to malignant endocarditis, are now thought to be identical with the bacillus coli communis, an organism, as is well known, whose pathogenic effects are observed in diverse parts of the body, and with varying degrees of intensity.

These facts should make us careful as to accepting any single organism as special to endocarditis.

The different varieties of streptococci and staphylococci, either alone or in company, may originate inflammation of the endocardium.

Microbes have been isolated in endocarditis accompanying erysipelas, puerperal fever, typhoid fever, influenza, pneumonia, tuberculosis, gonorrhœa, diphtheria. Interesting in this connection is a case just reported by Dr. W. T. Howard, Jr., of Baltimore, (*Johns Hopkins Hospital Bulletin*, April 1893) in which a malignant endocarditis was found to depend upon a bacillus having morphologically and by culture tests all the characteristics of the bacillus diphtheriæ, although the patient appears to have presented no history of having had diphtheria.

And although the special organisms have not been recognized, it is interesting to remember that the endocarditis either goes with or follows many instances of the eruptive fevers, malaria, rheumatism and malignant neoplasms.

Before the New York Pathological Society, Nov. 9, 1892, Dr. Hodenpyl in presenting two specimens from cases of the disease, spoke of the varied microorganisms found in malignant endocarditis and said that in forty-three reported cases the *staphylococcus pyogenes albus* had been found twice, the *staphylococcus pyogenes aureus* fourteen times, the *streptococcus pyogenes* six times, the *bacillus typhosus* once, the *diplococcus pneumonia* six times, the *tubercle bacillus* once, and the *bacillus fœtidus* (probably the *bacillus coli communis*) three times, while in ten cases the variety of microörganism had not been determined.

We habitually speak of the disease as ulcerative, and yet in some instances there is found very little or no ulceration whatever, but vegetations are luxuriant. A review in *Le Bulletin Medical* (Jan. 13, 1892) says on this matter: "Infectious endocarditis may be ulcerating and vegetating and, to speak the truth, there is no line of demarkation between the two anatomical states. If it is true that in certain affections, acute articular rheumatism for example, vegetating endocarditis ought to be the rule, there can, nevertheless, be produced under the same conditions an ulcerative endocarditis. In the same way puerperal endocarditis, ordinarily ulcerative, may be vegetating. The mode of evolution depends principally upon the medium."

Dr. Frederick Taylor, in the last Guy's Hospital report, presents an admirable contribution on malignant endocarditis in which he says: "From the observations on the bacteriology of this subject already referred to, it appears that the different microörganisms are apt to produce different pathological clinical results. Thus it is stated that some organisms invade the mitral by preference, others the aortic valves; that the conditions of ulceration or vegetation are dependent on the organism."

It will be seen that the French is broader than the English view just quoted; it includes the truth stated by Dr. Taylor, and adds the results of authenticated investigations, showing that the same infection produces results in different individuals.

It therefore seems just to conclude that the nature of the lesion is dependent upon both the infective agent *and the condition of the subject infected.*

As to the actual seat of the lesions, many careful observations have been reported, and the results

show the interesting fact that in the main the valves are first invaded.

Dr. Taylor remarks that in the majority of his cases, the ulcerative or fungating condition was engrafted upon a preceding valvular disease of the heart. Of the fifty-three cases which he describes, eleven were upon the right side, and the remainder on the left, and in all but one case the process was valvular.

Continental observers have devoted attention to determining whether the malignant process begins upon the surface of the valve or within the structure of the valve.

Saenger maintains that in a pathological state the valves may contain vessels, and in these vessels colonies of bacteria have frequently been found.

So there seems to be ground for the position that the process may be primarily intra-valvular.

Indeed Cornil and Babes have found microbes here when none could be discovered on the surface of the valves, and Hanshalter and Lion were able to discover the organisms in the connective tissue of the valves, when the surfaces were free.

On the other hand, in many cases, the disease undoubtedly first appears upon the free surfaces of the valves, and the invasion is most likely to be at that part where the valves strike together when forcibly closed.

The blood within the heart cavities may be free of bacteria while the diseased valves lodge large colonies, as in the case reported by Sidney Martin in the Gulstonian lectures recently delivered. (*Lancet*, April 9, 1892.) Yet in this case there were found infectious emboli in the cerebral and femoral arteries. Here the disease appeared in the left auricle, and the exciting organism was a staphylococcus growing in clusters and not in chains.

The relative frequency with which this form of endocarditis occurs in the right side is a matter worthy of consideration. The proportion occurring in Taylor's series practically corresponds with the findings of others, namely: eleven out of fifty-three cases.

Lion has made the suggestion that certain bacteria being aerobic, would grow best in the arterial blood of the left side, and that the anaerobic bacteria would flourish best in the carbonized blood of the right heart, and alludes to the frequency of right endocarditis in the fœtus.

However this may be, it will scarcely hold good of all instances, as for example the case reported by J. Jackson Clark at the meeting of the London Pathological Society, November 1, in which an excessively ulcerating and fungating inflammation limited to the right heart and lungs was found to depend upon a streptococcus.

In Martin's Gulstonian lectures above mentioned, he particularly showed that many of the changes and symptoms seen in malignant endocarditis were the result of certain albumoses found in the blood, and more particularly in the spleen. Chemically, these were indistinguishable from similar substances found in subjects of diphtheria and anthrax, although it was not so fatal in the same dose when injected into guinea pigs. It was found, however, to be a potent poison; it excited temperature, and in sufficient amount produced death.

Finally, after these reflections, the claim put forward that, clinically, cases of malignant endocarditis progress with very different symptoms, will not seem unreasonable.

Those who have observed even a few cases, must have remarked this fact. The physical signs may be of the most striking character or sink into insignificance, and the patient may succumb from the systemic poisoning without evidences of heart lesions or embolic disturbances.

The affection may pass for an acute pneumonia when the invasion is in the right heart and septic plugging of the pulmonary vessels follows; and, as is well known, the distant lesions seen in many cases may distract the attention of men of only ordinary carelessness from the actual seat and nature of the disease.

One often inquires, is the disease uniformly fatal? To my mind the answer must depend upon what one regards as malignant endocarditis. I saw a case succeeding a vulvar abscess, and accompanied by a septic inflammation of the neck and right hand, which went on to complete recovery.

Instances of puerperal endocarditis resulting in recovery are reported. Personally, I believe that cases recover, and that it is an error and a misnomer to apply the term simple endocarditis so unhesitatingly to all cases that have a favorable termination.

SOME CONSIDERATIONS BEARING ON THE TREATMENT OF PNEUMONIA.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

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The conclusion seems forced upon us, by recent investigations as to the comparative mortality in cases of pneumonia, that the death rate from this disease is on the gradual increase, and has been on the increase since 1822.

When we eliminate all elements of uncertainty and unfairness in the comparative statistics of various hospitals and institutions, we are compelled to admit that if the death rate has not actually very materially increased, it has not been reduced by our modern methods of treatment. Those methods of treatment differ very markedly from those in vogue during the first sixty years of this century. The best authorities during that period insisted that in this disease blood letting was "a remedy of indispensable necessity," and they were almost equally unanimous in their use of cathartics, blisters, and occasionally emetics.

Subsequent to 1860 our treatment has been greatly modified, being less active and heroic, and styled expectant. This expectancy consists in doing little or nothing during the first stage of the disease unless the temperature ranges high and the cough becomes harassing, when antipyretics, such as large doses of quinine, veratrum viride, and later the newer antipyretics of the antipyrine order are given with opium to allay cough. Later in the course of the affection, when the heart begins to show evidences of failure, alcoholics have been chiefly relied upon, being strongly recommended in all the recent text books to which I have had access.

When we bear in mind these striking differences in method of treatment in connection with the fact that the death rate has increased, or at least has not

decreased, under the newer system, which state of affairs can not be accounted for on the theory of change in the type of the disease, the conclusion seems forced upon us that there is something wrong somewhere.

A recognition of this fact has resulted in the production of a considerable volume of current literature bearing upon the subject of treatment. Those who have thus written, I think, may be divided into three classes: First, those advocating a return to the methods of our fathers. Second, those advocating the free use of such remedies as veratrum viride, aconite, tartar emetic, etc., in the early stages of the disease; and third, those advocating expectancy: that is, little or no treatment in the first stages, and alcoholics when evidences of cardiac weakness supervene, and perhaps cold externally for the reduction of excessively high temperature.

If we can believe the advocates of these different methods of treatment, pneumonia is the simplest of diseases to treat; the first two classes claiming to abort nearly all their cases in the first stage, and the third, to conduct nearly all their cases to a favorable issue. Nevertheless, the mortality rates are before us; in view of which, and our individual experience with the disease, we are compelled to accept these statements with a very large grain of salt.

As to venesection, it may be admitted that good may sometimes result in certain cases. The advocate of blood letting has this in his favor, that with the blood withdrawn there escapes a certain amount of toxalbumin; and I apprehend that the amelioration in the symptoms, which it is claimed often follows the operation, is due to this fact rather than to any relief which the right heart may receive by reason of a temporarily reduced total quantity of blood in the vessels; the modus operandi of venesection in this case being the same as in uræmic intoxication, where marked temporary relief often follows the operation, by reason of the coincident removal of uræmic poisons with the blood. On this supposition the fact would be explained that venesection is indicated, as its advocates claim, in all stages of the disease.

The veratrum viride treatment has always seemed to me to be unscientific and illogical from whatever point of view we regard it, and only capable of doing harm.

The immediate effect of increased body temperature is increase in rapidity of the pulse and respiration. This appears to be directly due to the action of the superheated blood upon the cardiac muscle and upon the respiratory nerve center. And this is the very thing necessary to increase heat dissipation and thus prevent a further rise in temperature. If, by means of such an agent as veratrum viride, we succeed in reducing the pulse rate to sixty or less per minute, it may well be doubted whether any good has been accomplished. On the contrary, in view of the impaired action of the heart, which we look for later in the course of the affection, the fact can never be lost sight of that drugs of this nature may add to the dangers under which the patient already suffers, and may be the determining lethal factor in what otherwise might be a favorable case.

We can never treat pneumonia truly scientifically until we are able to strike at the *materies morbi* of the disease, destroying the pneumococcus in the alveoli, or antidoting the pneumotoxin in the blood. This we are as yet unable to do, and hence our efforts will be palliative only.

We must abandon the idea that the peculiar cardiac weakness in this disease is due to obstruction of the pulmonary capillaries. The evidence all goes to show that such is not the case. Tying off part of a rabbit's lung produces no such effect upon the heart, and in pleurisy, with effusion, where the lung is compressed into the apex of the thoracic cavity, we do not find a heart so embarrassed as in cases of pneumonia. Again, we often see cases of pneumonia with extensive areas of lung involved, and with only comparatively mild systemic symptoms.

A case occurred in my practice last fall in a man forty-seven years of age, in which the lower lobes of both lungs were involved. The maximum temperature was 102.6 degrees, respiration rate 36, and pulse 108, the disease terminating by crisis on the seventh day. If cardiac embarrassment is due to pulmonary engorgement, then it should have been extreme in this case. The ordinary history of cases that terminate favorably is that when crisis occurs there is an immediate fall of temperature and change for the better in the character of the pulse, notwithstanding the fact that the condition of the lung remains for some time unchanged? The widely varying clinical history of this disease in cases where the same amount of lung substance is involved, must have convinced us all that we need pay but little attention to the lung itself, and that the gravity of the case depends more upon the accumulation of pneumotoxin in the blood than upon the local lesion.

All the vital processes are carried on by the agency of the nervous system, the great sympathetic presiding over all the so-called involuntary or vegetative functions. As long as these functions are maintained, so long will life continue. We recognize the vis medicatrix naturæ, and this force it is which calls forth those internal responses to external impressions which alone render life possible. When the germs of disease or their products gain an introduction into the human body, if there is not a counteracting internal action set up, then the patient dies. And when we come to study the effects of these germs or their products upon the individual, we find that they gradually reduce or almost abolish nervous sensibility, and that then the vital processes are at their lowest ebb, and if we are unable to reawaken nervous sensibility, death is inevitable. We see this condition of obtunded nervous sensibility very markedly in typhoid fever and pneumonia. In pneumonia the heart becomes very much weakened, and its action inefficient; not from any impairment in its muscular substance, but from impaired innervation, nervous sensibility being diminished by the toxic effects of poisons generated in the system and imperfectly eliminated, and probably in a higher degree by the poison peculiar to the disease—the so-called pneumotoxin.

The objects, then, to be accomplished are the increase of nervous sensibility and the elimination of the specific poisons of the disease and the products of retrograde metamorphosis. We have seen that the treatment almost universally recommended under these conditions of obtunded nervous sensibility has been alcoholics, freely and often administered, in order to stimulate the nervous system to renewed activity.

Alcohol has always enjoyed the reputation of

being a stimulant, but I am firmly convinced that such is not the case, and fully believe that this view of the question will ultimately prevail. Symptoms of this are becoming more and more numerous every year. The most commonly observed effects of alcohol are all sedative. Samuel Wilks enumerates these effects at some length: the dilated capillaries from vaso-motor paralysis, the semi-stupor sought by those who "drown their sorrows in the flowing bowl," the forgetfulness of evil done or wrongs sustained, the insensibility to cold and other unpleasant external impressions.

Cosgrove, reviewing the experimental work done by Ridge, Lauder, Brunton, Parkes, B. W. Richardson, W. A. Hammond, Prout, Fife, Vierordt, Smith, Perrin, Lehman and others, says that, contrary to what has been and is supposed, they found that small doses of alcohol produce from the first a narcotic rather than a stimulant effect. That all these observers, with the exception of Smith, also found that alcohol in small doses diminished the amount of carbon dioxide exhaled.

H. C. Wood, before the International Medical Congress in 1890, said that his doubts as to the stimulating effects of alcohol on the heart during anæsthesia had grown stronger and stronger for the past ten years, and that his own experiments showed that alcohol does not increase the size of the pulse or arterial pressure, but rather appears to increase the rapidity of the fall of arterial pressure, and thus hastens death.

N. S. Davis summarizes the physiologic effects of alcohol as determined by very many and elaborate experiments by many experimenters, including himself, as follows:

In doses of any size, from the least to the greatest, it is an anæsthetic, lessening nervous sensibility to all external impressions—heat, cold, weariness, despondency, weakness, pain; it also diminishes the oxygen carrying power of the red blood cells, thus materially interfering with the processes of Katabolism, thus impeding nature rather than aiding her in the elimination, not only of the ordinary products of retrograde metamorphosis, but also of those foreign disturbing elements which constitute the poisons of disease.

Experiments with alcohol on digestion are no more favorable to its use in cases of pneumonia than those already mentioned. Blumeneau says that as a result of a long series of experiments with alcohol on digestion, he has proven that the functional activity of the gastric juice, its general acidity as well as amount of hydrochloric acid present and its corresponding digestive powers are diminished, and that this diminution of power is relatively greater in persons not accustomed to the use of the drug; also that the motor power of the stomach and its capacity for absorption are diminished in direct proportion to the strength of the alcoholic solution.

If these conclusions as to the physiologic action of alcohol are warranted by the facts, and I do not see how they can be doubted, we are justified in the conclusion that its use in cases of pneumonia is illogical; that it is utterly incapable of doing good; and that it is largely responsible for the high mortality rates in this disease.

We ought therefore to abandon the use of alcoholics in the condition in question, and extend our observations in other directions, in order to ascertain whether we are in possession of a therapeutic agent from whose physiologic action we have any reason to expect aid in the accomplishment of the objects to be attained, namely, the increase of nervous sensibility and the elimination of the specific poison of the disease and the products of retrograde metamorphosis. I think we have such an agent in strychnia.

There appears to be no difference of opinion as to the action of this drug. By its administration the sensibility of the nervous system is heightened in every part, not only the cerebro-spinal system but also the sympathetic. It acts as a stimulant on the respiratory nerve center, upon the cardiac ganglia, and increases the sensibility of the nerves of special sense, touch, sight, hearing, and also increases the activity of the olfactory sense. Its stimulant action on the involuntary muscular system is witnessed in its increase of intestinal peristalsis and in increased force of uterine contractions when the drug is administered in the progress of parturition. It increases the mechanical movements of the stomach as well as the amount and acidity of the gastric juice, thus assisting the process of digestion, and at the same time there is an increased action of the kidneys, witnessed by an increase in the quantity of urine eliminated.

We have, then, in strychnia, a drug which in its action is diametrically opposed to alcohol and one which is above all others, by reason of its physiologic action, indicated in the treatment of pneumonia at the stage which we are considering, but which, so far as I am able to judge from text books and current literature, has as yet received but little recognition; and it is the purpose of this paper to urge the abandonment of alcohol as a stimulant in this disease and offer strychnia as one substitute therefore.

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TO BLEED OR NOT TO BLEED IN PNEUMONIA?

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

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Fifty years ago when pneumonia was recognized as a pure and simple local inflammation of the lungs this question would have been answered in the affirmative, and no reputable physician would dare raise his voice against it. But in this, the last decade of

the nineteenth century, the physician that resorts to bleeding in pneumonia offers an apology for so doing. Our modern views of pneumonia have undergone a radical change during the past few decades. The histological structure and the phynelogical function of the lungs are better understood than they were fifty years ago. Our knowledge of the pathological anatomy and the pathological functions of the lungs have undergone wonderful changes during that time. The bacteriologist with his cultures, his microscopic and microörgans the chemist with his reagents, his test tubes and ptomaines have greatly changed our opinions in regard to the causes and progress of pneumonia, and with these advances and changes must of necessity come modern and improved methods in treatment. The physician that still consults his old books upon pneumonia for the purpose of gaining a knowledge of this disease and its treatment, might with as much profit consult the laws of the Medes and Persians or the blue laws of Connecticut as to his knowledge and duty under our present civil laws.

With our modern knowledge of the causation, pathology and treatment of pneumonia, we ask the question, "To bleed or not to bleed in pneumonia?"

What do we learn by examination of statistics? The advocate of blood letting in pneumonia compiled from the statistics of the last fifty years and arrived at the conclusion that the mortality of pneumonia has gradually increased as blood letting has diminished. While the opponents of blood letting take the same statistics and by their compilation of them prove as conclusively that the mortality of pneumonia had decreased in proportion to the decrease in blood letting.

This shows us how unreliable statistics are in the hands of those that wish to pervert them. The circumstances and conditions under which the statistics are gathered must all be taken into account and carefully studied before they can be of use to us. I might take up this entire paper quoting statistics and I would arrive at the following conclusions: That the statistics of the mortality from the advocates of blood letting prove that pneumonia has increased from 6¼ per cent. to 31 per cent. during the past fifty years. The statistics of the opponents to blood letting prove that the decrease of mortality from pneumonia has been from 40 to 4 per cent. in the past fifty years.

Dr. G. M. Smith says that, "Any one at all familiar with metropolitan hospital affairs, distinctly understands that hospital statistics can not always be quoted as exemplifying the results of treatment unless the cases are classified. Many cases of sickness and injury are brought to a hospital in a moribund condition; treatment can scarcely be initiated, and so far as the institution is concerned, they are really coroner's cases. The modern hospital ambulance system, which is such a blessing to humanity, is doubtless often employed to foist into an infirmary dying cases. Many without friends in lodgings, or among heartless friends or relatives, are shuffled to an institution to die while in their last moments."

A much larger proportion of bad cases of pneumonia are sent to the hospitals now than fifty years ago. The risk of removing such cases is attended with great danger. A case of pneumonia is not certainly benefited by removing it from a warm bed to a cold ambulance and then the exposure incident to a long ride does not add to his chances of recovery and the case dies and is reported as one showing the increased per cent. of mortality from pneumonia where blood letting is not resorted to. We all know that pneumonia is more fatal in some localities than in others, and that in the same locality the mortality is greater some years than in other years, and that the per cent. of fatal cases vary much in different seasons of the year.

The *apparent* large per cent. of deaths from pneumonia in private practice can be accounted for in several ways. A large number of infants and children's deaths are now reported as from pneumonia, which at one time were reported under some other name. Secondary lung complications are now usually reported as pneumonia, and then the reports of death are more complete than they were fifty years ago. When I was a boy a great many cases died of *old age*. Who ever hears of a death certificate made out with the cause of death as "*old age?*" All of these cases are now reported as pneumonia, most of these in old persons not being true pneumonia but hypostatic congestion. All of these causes and cases are reported as deaths from pneumonia and it swells the per cent. of fatal cases of pneumonia when blood letting is not resorted to.

Twenty-five years ago when I graduated, the idea that a certain class of cases of pneumonia would die if I did not bleed them, was thoroughly impressed upon my mind. They were so vividly described that I could tell them at the first glance. That the death of these cases should not be laid at my door, the first instrument I bought was this lance (showing a lance) with the determination to use it *well* and to use it *often*. I carried it with me every day for twenty years, expecting to find a suitable case of pneumonia in which to use it. The case requiring bleeding never came to me. It has never been used to bleed a case of pneumonia, and for the past four years it has done good service in a manicure set. In my twenty-five years of practice I have never found a case of pneumonia in which I thought bleeding would be beneficial, and I have *never regretted* not having bled a case.

What are the physiological effects of blood letting, and what results do we expect to obtain from it in pneumonia? Huxham, Cullen, Sydenham, and others of the old sanguineous school took large quantities of blood from cases of pneumonia. Day by day, with the progress of the disease, fresh blood letting was practiced. Dr. Gregory after bleeding a young man into convulsions by the abstraction of between four and five pounds of blood in three days, concluded that he had cured him. Bouilland recommended a daily bleeding to the amount of fourteen to sixteen ounces until the disease is cured (or dead.) Andral asserts that "no period of the disease contra indicates venesection and that age is no barrier to this treatment, the slightest threatening of a relapse calling for further bleeding; it is not to be omitted without the greatest danger, no amount of prostration to prevent it, if the respiration be seriously impeded." Grisolle recommend the abstraction of from two to four pounds by repeated venesections, and still regards this plan as the most successful in the treatment of the disease. Within a few years Professor Hardy has bled patients with pneumonia three times in twenty-four hours. Within the past few years several efforts have been made to revive this so-called

"Lost Art." It is not only recommended by some of the older medical men who graduated during the period of bleeding, but some of the younger members of the profession, who have failed so far to make progress forward, start on a backward track and attempt to resurrect some old idea treatment or operation that the progressive portion of the profession have discarded long ago.

The late Prof. George B. Wood in his work on "Therapeutics and Pharmacology," in speaking of blood letting says: "There is no remedy more important than this; perhaps none which so frequently saves life. The indications which bleeding is calculated to fulfill, are, first: to lessen the quantity of the blood when in excess. Second: to lower its quality when abnormally rich or stimulant. Third: to relieve vascular irritation and inflammation through the two agencies just mentioned. Fourth: to obviate local determination of blood dependent on excessive action of the heart. Fifth: to relax spasm and relieve nervous irritation in general by directly depleting the nervous centers. Sixth: to awaken the susceptibility in any organ rendered insensible by active congestion of the nervous centers, and seventh: to promote absorption by depleting from the blood vessels." In another place he says: "The effects of bleeding are to lessen the quantity of blood for a time, and to impair its quality. After the loss of blood, absorption of liquid takes place immediately in order to supply the deficiency, so that the blood vessels are soon as full as they were previously to the bleeding. Therefore, though the immediate effect of bleeding is to diminish the mass of the blood, the loss in this respect is soon repaired, and the permanent effect is a depreciation of the quality of that fluid, which is rendered more watery, and less able to supply influence and nutriment to the systemic functions." Again he says: "The immediate phenomena attending on the loss of blood are a diminution in the fullness and force of the pulse, paleness of the surface, and reduction of the temperature of the body. As the loss proceeds, the pulse becomes more and more feeble, till it can scarcely be felt; the lips, face and general surface become increasingly pale, and the skin cool; feelings of languor, nausea, muscular weakness, giddiness, mental confusion and faintness come on, and at the last syncope takes place, with a temporary suspension of all the obvious vital processes, from which the patient gradually recovers."

I have quoted so extremely from Prof. Wood because he was a conservative type of the old school. Do we find in his picture of the physiological effects of blood letting a remedy of great value in the treatment of pneumonia, viewed through modern pathology?

Pneumonia is an infectious disease produced by the presence of the diplococcus pneumoniæ. Whether we call it primarily a local disease of the lungs followed by constitutional symptoms, or whether we consider it a general disease with local manifestations in the lungs makes but little difference. What concerns us is, what are the conditions that we have to deal with and what produces them, and how can we best relieve them?

In a paper I read before the Section of Practice of the American Medical Association in 1888, on some of the "Influences of the Sympathetic Nervous System in Disease," I took the ground that most of the so-called inflammatory and catarrhal diseases could be more thoroughly understood by considering them as conditions dependent upon paresis of the sympathetic nervous system. I said in this paper that: "Pneumonia can be more easily explained in this way than in any other." I will not take up your time with the pathological anatomy of the lungs or blood in pneumonia. The conditions that are spoken of, that of engorgement, red hepatization and gray hepatization are only the conditions that we find where the efferent nerve filaments of the sympathetic ganglia have been severed, or held in temporary suspension,—the rapid pulse, elevated temperature, difficult breathing, weak heart, etc., are the effects of paresis of the vaso-motor system, as has been demonstrated by the experiments of Pettit, Dupuy, Barnard, Bidder, Brown-Sequard, Samuel Fox, Flint and others.

The diplococcus pneumoniæ find lodgment in the lungs; by their local action they produce an irritation and by the action of the ptomaines produced by them which enter the circulation and act upon the ganglionic nerve centers produce every condition and symptom we find in pneumonia. The action upon the nerve centers in connection with the local irritation of the microörganism cause the engagement of the lungs and, following this, we have the stages of red and gray hepatization. With the loss of tone of the vaso-motor contractors the vessels become dilated and press upon the air cells cutting off the supply of air and with it the oxygen, producing dyspnœa; at first the current of blood passes more rapidly than normal, but after several hours the current becomes slower and slower. The right heart using all its force to propel the blood through the lungs at last becomes exhausted. The left heart not receiving sufficient blood from the lungs becomes rapid and irregular in its action.

Heart failure and exhaustion being generally the causes of death in pneumonia, every effort should be made to preserve the strength and not waste it by blood letting.

If we carefully consider the physiological effects of blood letting referred to in this paper, and then study the conditions and symptoms and their causes in pneumonia, what valid reason can we give for the removal of blood? If the point is raised that it gives relief in the stage of engorgement by reducing the volume of blood passing through the lungs, would it not be much better to preserve the blood in the body and regulate the amount passing through the lungs by ligating the extremities, or by means of well known therapeutic remedies, and then we have the full amount of blood to husband the strength of our patient after the urgent symptoms have passed off. When we consider, therefore, that the most urgent symptoms of the disease, the dyspnœa and the pyrexia are only temporarily diminished by blood letting and that they both tend in most cases to return after a few hours, the reasons for the adoption of this method of relief lose much of their force.

The mortality from pneumonia depends much more on prostration in the later period than on asphyxia in the earlier stages of the disease and the prostration is much more likely to occur when the strength of the patient is weakened by bleeding. Wilson Fox in speaking of blood letting in pneumonia says: "With regard to the possible effect of this treatment

in cutting short the disease, it may be stated that the chances in any given case are strongly against such a result. Looking at the general effects of this procedure, patients will on the whole be probably in a worse condition for passing through the latter stages of the disease when weakened by an artificial loss of blood than they are likely to be if their resources in this respect are husbanded."

Dr. Whittaker says: "There could be no justification of venesection in pneumonia, except upon the theory of a local inflammation. That pneumonia is, however, not a simple inflammation, is proven by well established facts. Pneumonia is due to a poison entering the blood and affecting the whole body, and no amount of blood letting could let it out, any more than we can drain out the impurities of a stream with a bucket."

After twenty-five years spent in the careful study and treatment of pneumonia, I do not think I would be any more justifiable in bleeding a patient with pneumonia than I would in picking the pocket of a millionaire because he had more money than required.

If I believed that blood letting would decrease the mortality from pneumonia, I would bleed my patients, even if the entire medical profession should condemn it.

321 Superior Street.

EARLY ASPIRATIONS IN ACUTE PLEURITIS.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. J. C. MINARD, M.D.

BROOKLYN, N. Y.

Pleuritis is a disease as old as medicine and common as spring and autumn, but as many mistakes, perhaps, have been made in the diagnosis and treatment of it as have been made in the more obscure and less common diseases.

In the present light of medical science, blunders or neglect are inexcusable in treatment or operation in any branch of medicine.

The authorities teach that this disease will run its course often with little or no treatment, and is easy of diagnosis. So one may say of scarlet fever, sometimes. But any disease, common, obscure or rare, which will vitiate or interfere with the issuing of a life insurance policy, may not be considered slightingly, or treatment assumed without duly considering the gravity of the case, with the many stages, types, complications and dangers.

In the cities of the Atlantic seacoast, especially New York and Brooklyn, pleuritis becomes one of a series of our deadly diseases, especially when pneumonitis plays the final rôle.

The above teaching tends to mislead when the sudden attack, the rapid course, the intense suffering and final dissolution scatters to the wind the set rules of the books, the best therapeutics and the skill of the most experienced.

The business man in whom the habit of concentration becomes so fixed that a small amount of pain does not alarm so long as the brain keeps clear and the hand steady, sinks at the threshold of his own door or in his office, and in spite of consultants, specialists and trained nurses succumbs in three to fifteen days. If the victim be a frail woman who has always known pain somewhere, dyspnœa and acute pain set in at once, and with a scared look indicative of the approaching dissolution, she loses heart, so to speak, and in the home her place becomes empty, while the family physician, who becomes so attached to his patients that their home hopes and home joys are his, sits dumb with defeat. Autopsies are seldom asked for and rarely allowed, hence medical knowledge grows slowly and only by years with the general practitioner not attached to a clinic or hospital.

In this short paper or in a longer one, it would be beyond forbearance to dwell upon the causes and types, the many views of treatment, the discarding of many of the old and acceptance of some new remedies, the manner of administering them, the weary convalescence and crippling adhesions—for well I know I am speaking before the gods after being present at the battle of the giants this morning—all these have been told well by the latest authorities, and their sanction given to the changes.

Every practitioner has his happy combination of a large repertoire of drugs and his favorite prescription, also his studied mode of action. But routine practice can not be tolerated.

The advantages of the new therapeutics—the aniline carbon group—must be admitted, of which phenacetine takes foremost rank. Yet Loomis still holds, with most Americans, "that the only controlling power over acute pleuritis is opium." There still remains to us, however, of the old system of therapy, calomel, opium, veratrum viride, aconite and digitalis, the integrity of which can not be impeached. The counter-irritations and even poultices have followed the fate of the untrained nurse. Yet how much comfort these have given to the sufferer when properly applied, or before the arrival of the physician.

It does not take many cases of pleuritis to convince the practitioner that a diagnosis is not always an easy matter. Complication with pneumonitis, abscesses of adjacent organs and intestinal engorgement direct the attention away from the seat of disease till suppuration renders the case hopeless, ending in acute tuberculosis if there be predisposition.

The reader once held a diagnosis in abeyance for eighteen hours in favor of appendicitis where intestinal engorgement complicated an operative case of pleuritis. To auscultate and make out the different sounds which are taught by the specialists as indicative of this or that condition; to hear the pleuritic râles of a Leaming, whose acute hearing could discern vesicular breathing after death, the cause of which he attributed to changes taking place in the pleural walls; in palpation to distinguish the musical tone and pitch of a Quimby upheld by Damrosch, or to have had the clinical training of a Loomis, whose eagle glance can descry the prey afar off, only a few can hope to aspire. By the way, this fine sensibility might develop in some medical westerner who is accustomed to hear the grass grow, according to a facetious editorial. But it must not be ignored that the beginning of a successful ending in treatment of any kind, however tedious, is in a careful mapping out of the involved parts by "palpation and auscultation during inspiration and expiration," as lain down in the books and taught in the clinics, noting the type, duration, history and complication.

It will not be surprising that a treatment which will cut short the tedious and dangerous methods of the past should be welcomed in the cure of this disease. The majority of the profession now accept early aspiration as this remedy, and that it belongs to the realm of general practice and not to be delegated to the field of surgery.

Since Trousseau taught that there was more than palliation in the method, time has proven it. From Trousseau to Lister we owe progress in the past to all the brilliant minds who have helped to perfect the methods, instruments and the applications of these, by which aspiration is now applied as a remedy in the cure of acute pleuritis.

Dr. Matas' indications when to operate are clear and explicit: "1, the abundance of the effusion; 2, the rebelliousness of the effusion to absorption in spite of appropriate medication." Again we quote his reasons for immediate operation:

"Excessive effusion, asphyxia, cyanosis, large accumulations, displacing the heart, interfering with thoracic circulation, which may cause instant death." His rule is that "when fluid can be detected on a level with the second rib, operation is indicated."

After a clear diagnosis has been made out and the fever and pain controlled, the preparation for aspiration is simple to one accustomed to minor surgery, but must be thorough, also the careful selection of a proper instrument, and there are thirty or more to choose from. It must have the guarded point, must be easily cleaned and comfortably carried about with one. It must be thoroughly cleaned, and we here give Dawbarn's method of sterilizing:

"Boil the trocar and canula separately for twenty minutes in a solution of one drachm of sodium bicarbonate to a pint of water, then after drying keep them permanently immersed in a sterilized bottle filled with absolute alcohol." Other methods of sterilization may be employed, only one is to remember to guard against microörganisms.

The patient is to be prepared by thoroughly cleaning the parts with carbolic acid solutions (surgical solution), or wipe off with ether and absorbent cotton if the skin is not broken.

"There is no classical point for operation," says Matas. "Select a point near the fluid; be sure of the anatomy when the patient is in a semi-recumbent position. Avoid the point of the shoulder blade so as not to give the patient discomfort afterward in moving in bed, especially with nervous children. Keep the canula clear if it become stopped with mucus. Evacuate the fluid slowly and sustain the patient by hypodermic injection of stimulants. The reader has had the temperature fall from 104° to 90.3° in three hours after taking ten ounces of fluid."

The pleural cavity may refill, but a second evacuation is seldom required. The patient is not yet cured. Great care must be taken to expand the contracted lung and restore the displaced heart to its proper place by gymnastic exercises; local massage to correct the deformity of the chest. Open air exercise, proper food and tonics must be ordered. In suppurative cases the opening of the thorax must be resorted to, with drainage and washing out with antiseptic mixtures. With asepsis, care and medications to produce sleep, if death ensue it must be from bad methods or unforeseen complications. Chloroform may be given with good results, especially to nervous children; cocaine also may be used with advantage As in any other surgical operation, unnecessary pain is to be avoided.

The lesson of the hour to the general practitioner in the treatment of this seemingly simple disease, teaches that the field of practice is being shadowed in its usefulness by consigning aspiration to the surgeon.

The general practitioner must be an all round physician, not a specialist. He must think anatomically as well as physiologically. He must diagnose correctly and do all his minor surgery himself in order to keep the respect of his patient, and only in the capital operation should he surrender his patient to the specialist. And even then he should be able to so correctly locate disease that he may command the surgeon rather than retire.

DEMONSTRATION OF GASTRODIAPHANY.

Read before the Section of Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY MAX EINHORN, M. D.

PHYSICIAN TO THE GERMAN DISPENSARY AND INSTRUCTOR IN CLINICAL MEDICINE AT THE N. Y. POST GRADUATE MEDICAL SCHOOL.

Although our means of diagnosis in diseases of the stomach are quite manifold, and have of late been increased (chemical analysis of stomach contents; inflation of the stomach with gas; the splashing sound), nevertheless I do not hesitate in bringing in a new method of examination before your learned body, as I am convinced it will prove of value. In no other region of the body does there exist at times so many difficulties for making an exact diagnosis as in the abdominal cavity. Here so many important organs are crowded together, and though in the normal state they are friendly neighbors and hold their own places, it is quite different in sickness. This often necessitates changes in the size and position, and thus the normal limits are obliterated, and at times hardly recognizable. This has special reference to the stomach, which is the most frequently afflicted organ in the abdomen. All means tending to give us a clear idea of the position and size of the stomach must be appreciated. Gastrodiaphany or transillumination of the stomach serves best this purpose, and after a few short remarks I shall demonstrate to you the method.

With a light inside, the stomach forms a kind of lantern, which is recognizable through the translucent tissues. As small streaks of light are more perceptible in the dark, it is best to illuminate the stomach in a dark room.

For examination, I make use of a very simple apparatus. It consists of a soft rubber tube, at the end of which is fastened an Edison lamp (of hard glass) by means of a small metal mounting; from here conducting wires run to the battery; at some distance from the rubber tube there is a current interrupter. The insertion of this apparatus into the stomach is no more difficult than that of the ordinary tube alone. I usually have the patient in a fasting condition, drink one to two glasses of water, and thereupon insert the apparatus, lubricated with glycerine.

In 1889 I had first described this method of examining the stomach and designated it "gastrodiaphany" for the stomach becomes translucent, and called the apparatus serving this purpose the "gastrodiaphane."

It is best to examine the patient either in a standing or a recumbent posture. The stomach presents itself as an illuminated zone of a reddish hue on the abdominal walls; its contours can be discerned more accurately by pressing with the hand on the abdomen in the neighborhood of the transillumination figure, or, speaking more correctly, by counter-pressing the stomach. By means of this manipulation the point in question is brought nearer to the source of light, in case the stomach is situated beneath it. Normally the transillumination zone of the stomach is found in every individual. It is of interest to observe that the stomach moves farther down during a forced inspiration, *i.e.* the trans-illumination zone is seen to descend. During a strong contraction of the stomach the transillumination figure becomes considerably smaller. This can be frequently observed as soon as the patient tries to vomit during the examination. If the stomach is considerably dilated, one can see by means of the gastrodiaphane on the abdominal walls of the patient an intensely lucid lower zone, which is situated between the navel and the symphysis and goes over into a less intensely clear zone which sometimes borders the left margin of the ribs. The transillumination figure corresponds with both that part of the stomach which is filled with water and that which is filled with air.

In contra distinction to dilatation of the stomach, the cases of gastroptosis (low position of the stomach, show a relatively small trans-illumination zone, which is situated far below and extends from about the symphysis to the navel.

In the past four years I have often made use of gastrodiaphany as a diagnostic means. In my paper "On Gastrodiaphany" *Medical Journal*, December 3, 1892, I have pointed out the value of gastrodiaphany in the following:

1. We are enabled to recognize quickly a dilatation of the stomach.

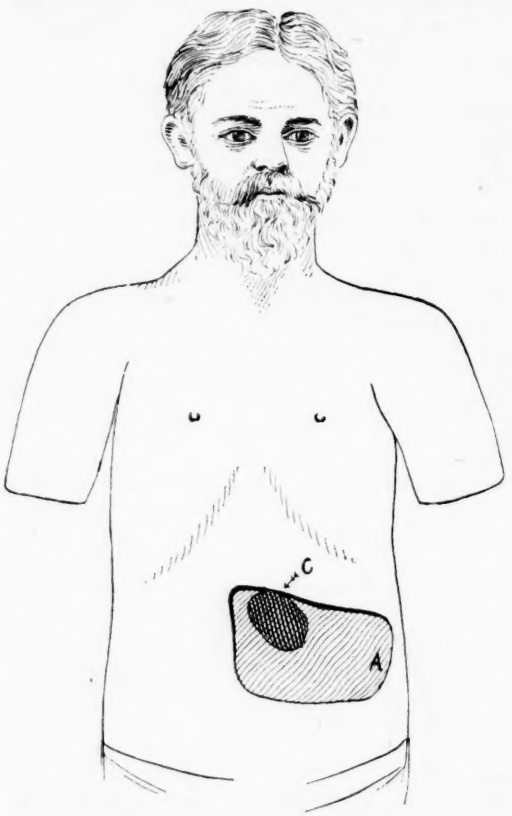
2. The condition called "gastroptosis" can with certainty be pointed out.

3. One is enabled to perceive tumors or thickenings of the front wall of the stomach by their lack of translucency.

In that paper I described a case of cancer of the front wall of the stomach, where the transillumination of the stomach was not apparent, *i. e.*, the field of translucency of the stomach was entirely absent. This negative result of gastrodiaphany proved to be important for the diagnosis of the case in question, as the orifices of the stomach (cardia and pylorus) had not been affected.

To-night I would like to report to you the result of gastrodiaphany in a patient with carcinoma pylori, whom I had the opportunity to examine several times. There the tumor could be very well felt; there was stagnation of food in the stomach for several days; no free HCL; organic acids present. The diagnosis was carcinoma pylori. The picture of diaphany showed a large illuminated zone going from the left margin of the ribs downward ($\frac{2}{3}$ finger width below the navel) and horizontally to the right about $1\frac{1}{2}$ inches beyond the linea alba. The upper part of the transilluminated zone was dark or shadowy just in the region of the linea alba stretching to both sides of it having a horizontal diameter of 3 inches and a vertical of $2\frac{1}{2}$. This shadowy figure was embedded in the transilluminated zone and the reddish hue could be perceived almost around ($\frac{5}{6}$ of the circumference) it. The drawing represents schematically the transilluminated stomach with the figure in it. (See figure.) Although in this case the tumor could be felt and the diagnosis was made without the aid of the gastrodiaphane, nevertheless, the result of the diaphany examination was very interesting and instructive.

Mr. President and gentlemen, gastrodiaphany in man as first practiced by me has found its way to Russia, Germany and France (Reichmann, Heryng, Pariser, Boas, Renvers, Doumer) and in this country others (D. D. Stewart and M. Solis Cohen) besides myself, practice it. Let me hope that after this demonstration the use of gastrodiaphany will be more promulgated and that it will be of continued value to the profession.



a—Trans-illumination zone of the stomach.
c—Tumor.

IMMIGRATION INTO BRAZIL.—The Brazilian Congress recently repealed the laws prohibiting Chinese and Japanese immigration. There is great demand for labor supply among the farmers. All immigration into Brazil is now through a company who have a contract with the government to introduce not less than 20,000, or more than 100,000 immigrants per year.

Among other conditions, it is specified that 90 per cent. must be families of agriculturalists; they must be of different nationalities, not more than 60 per cent. coming from the same country. Ages are specified and all must be strong and apt at their profession. Paupers and criminal classes will not be received. When accepted, immigrants are housed and fed until the government transports them to their places of destination in the interior. The government will send back to their native country, those who become widows or orphans or incapacitated by accidental injury during the first year.

THE MUTUAL INTEREST OF THE MEDICAL PROFESSION AND INSURANCE COMPANIES IN THE PROLONGATION OF LIFE.

Read before the Section of Medicine at the Forty-fourth Annual Meeting of the American Medical Association, held in Milwaukee, Wis., June, 1893.

BY CHARLES DENISON, A.M., M.D.

DENVER, COLORADO.

Professor of Diseases of the Chest and of Climatology, University of Denver; Ex-President of the American Climatological Association; Author of "The Rocky Mountain Health Resorts," "The Annual and Seasonal Climatic Charts of the United States;" etc.

This is a new inquiry, seeking to bring into better harmony and successful coöperation two great institutions, *i. e.*, scientific medicine and life insurance business. Those satisfied with what is already the rule will oppose with the argument, *cui bono?* the two callings are wholly distinct and entirely sufficient as they are. The argument is both fallacious and deceptive, besides being useless.

We, the medical profession, are not and do not pretend to be perfect. We are simply on the road to perfection, constantly passing many things by the way with regretted and unregretted, if unknown, ignorance of their real nature.

If Lawson Tait had any reason to make the statement attributed to him, that "that man would be rash who would make a positive diagnosis of any given condition within the abdominal cavity," then certainly every physician must appreciate the equal necessity of the largest possible array of evidence of disease within the thorax in order to reach any positive conclusion. Time is evidence, and memory is unreliable, hence the great need of the systematic recording of the evidence in chronic cases. A complete diagnosis may be so difficult that it requires to be something more than "physical," and the physician needs all his own intuition, historical information and side aids, as the microscope, to come to a definite conclusion.

We know so very little of the *pretubercular stage* for instance, that indefinite. indefinable condition of the body solids or fluids, before the *bacillus of tubercle* "lives, moves and has its being."

And as to life insurance, it can not boast of any greater completeness than the medical profession, unless on the understanding that insurance is nothing more than taking chances on those who will die in favor of those who survive. Life insurance had practically no existence previous to 200 years ago, when Pascal, a Jesuit priest, being appealed to to divide the stakes in a game of chance, in doing so figured out the "doctrine of probabilities," which has ever since been the basis of the life insurance business. But, *as an institution interested in life*, insurance is far from the attainment of its highest success. To appreciate the truth of this statement one has only to carefully peruse the diverse views as to "Modern Insurance and its Possibilities," in the March number of the *North American Review*, by prominent and distinguished presidents of American life companies. What a splendid conception of the "*possibilities*" of life insurance these excellent gentlemen would have had if they could have seen, *in their mind's eyes*, the harmonious picture of the coming life insurance president aiding and abetting the physician of the future in *the prevention of disease and the prolongation of life!* Strange as it may seem, in view of such well rewarded business sagacity, as these correspondents of the *North American Review*, enjoy, it does not appear to have occurred to them to inquire how much it would have cost to stamp out a disease in preference to paying a bonus for those this given disease had slaughtered. Judging by the "possibilities" mentioned, the important question has not yet been entertained, namely, how 10 per cent. of health precaution and skillful, systematic and professional supervision of their risks might result in 30 to 60 per cent. pecuniary gain to the companies.

However, admitting that the life insurance company has thus far been an institution founded on money considerations only, we will at first strive to keep in the background the splendid humanitarian idea which underlies this present conception of its future possibilities. Then, when a broader and nobler course for the companies has been shown, not only to be comparatively inexpensive but very profitable considering the outlay, the beneficent purpose of prolonging life, the idea of benefits while living for the insured, as well as for his survivors after death, may be a substantial support to the more enlightened plan for life insurance's usefulness. Let it be distinctly understood that this is not a plea for the insurance of *invalid* risks. However, the time may come when the better understanding of the classification and varying longevities of invalids may lead to a knowledge of their insurability. No, it is the care and improvement of the risks the companies have already taken which are prominent objects of this paper.

There is undoubtedly a considerable mortality rate, which, because of deaths by accident or acute diseases, is diverted from the ratio that would otherwise belong to the consumptive class. Besides medical officers are making particular efforts to shut out this one disease by skillful selection, and by the exclusion of heredity. Notwithstanding these influences there are deaths enough among the insured from tuberculosis alone, to warrant the reform hereafter suggested in this paper. If the other companies were as painstaking in the compilation of their mortuary statistics as the Mutual Life of New York has been, they too would learn something directly to the point and greatly to their benefit.

Namely, 1st: That, as to consumption, as early as the third year of insurance the companies have practically lost most of the advantage of their selection of risks. 2nd. That from the second to the tenth year of insurance the mortality they have to pay for averages 23 per cent. due to some form of tubercular disease. This is a fair inference from the following table, kindly furnished me by the medical department of the Mutual Life, taken from the mortuary records of the company for its first thirty years of of experience:

TABLE XV.—*Proportion of Consumptive Mortality to Total Mortality and to Years of Life Exposed.*

Duration of Insurance.	Deaths from Consumption.	Percentage on Total Mortality.	No. of Deaths to 10,000 Years of Life Exposed.
1st year.	57	10.67	7
2d "	117	20.07	17
3d "	133	24.19	21
4th "	143	25.49	25
5th "	116	23.73	24
6th to 10th year..	298	22.70	28
Above 10 years..	168	14.33	23

The above are not strained estimates, but probably underestimates for all companies; for that the Mu-

tual Life is a carefully managed company in its medical department is either plainly shown by the following table, obtained from the same source, or else the more numerous consumptives among the beer drinking Germans hang on to life much longer, than the consumptives in our healthier yet faster-living America:

TABLE VIII.—*Showing the Annual Number of Deaths from Consumption Among 10,000 Insured at Each Quinquennial Period of Life.*
PROPORTION OF DEATHS FROM CONSUMPTION TO EVERY 10,000 INSURED.

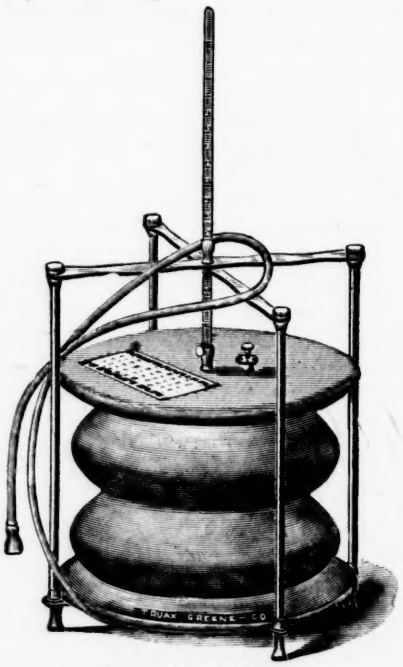
Age.	Mutual Life Insurance Co.	12 German Life Insurance Co's.
21 to 25 years	23	19
26 to 30 "	23	39
31 to 35 "	22	42
36 to 40 "	17	37
41 to 45 "	17	30
46 to 50 "	16	38
51 to 55 "	15	35
56 to 60 "	16	32
61 and upwards	18	32
All ages	18.6	35.7

NOTE.—It should be borne in mind that the above table is influenced by the younger life which obtains in a company's experience during the first 30 years of its existence.

What is needed is a similar computation up to date of the mortality experience of all the companies, not only like the above two tables, but also another giving *the ratio of deaths in this class to all deaths for each year's age of policy.*

Then in comparison with general mortality statistics, obtained without reference to insurance, the companies would know two important facts; *first*, the quality of work their agents and physicians are doing for them; *second*, the great importance and tremendous expense of the consumptive class on their lists. They would incidentally learn the great value to the companies of climatic change and close supervision or individualization in these cases. This needed list should comprise deaths from consumption, fibroid phthisis, chronic pneumonia, chronic pleurisy and bronchitis, tuberculosis, asthma, scrofula, "wasting" etc. My experience, in an effort to get these data from the companies, is that they haven't them, or if they have they are not of such a nature as to be given to the public. Of course we must admit a certain untrustworthiness of mortality statistics, the insidious and usually complicated existence of tuberculosis furnishing one excuse for a flexible estimate, but broadly it can be stated that the cost in death losses paid by life companies, in the past fifty years, has been between $350,000,000 and $600,000,000. In view of the importance of this consumptive class to the company's welfare, and the, to me, undoubted fact that latent tuberculosis is at the bottom of more failures in health than that subtle condition ever was credited with, I recommend to medical directors of life insurance more exact and systematic safeguards against the entrance of such impaired lives on an equal footing with selected healthy risks. There is not time and so it is not here my purpose to fully discuss the intimate relations which should always exist between the medical director and the medical examiner of a life insurance company. The confidence which is reposed in these two by the unprofessional officials of the company is as yet insufficient to offset the excessive interest the agent has to insure anybody regardless of risk, or the desire of many applicants to be rated higher than their physical condition fairly warrants. In a carefully constructed entrance examination paper, among the physical conditions required to be stated, I think the *spirometrical* and *manometer record* of the applicant should be included. Then, if either or both are below a given fair standard, (say 25 or 30 per cent. below) for the applicant's height, sex, age, etc., the exposure of the applicant's chest and the taking of the semi-circumferencial measurements of the two sides, should in all cases be required. By these measurements the following will be shown: First. If an unnatural difference in the respiration movements of the two sides of the thorax has to explain, by inference, a deficient spirometrical record, with manometer record normal for that person, then surely that inference is toward *fibrosis* or *pleuritic adhesions* and perhaps *latent tuberculosis.* Second. If, with similar variation in movement, a marked deficiency in manometer record has to be explained, the spirometrical record being all right, then the inference is to a *positive weakness*, which must influence the applicant's vitality. Third. If, however, deficiency below a standard of health both in the spirometrical and manometer record of an individual, can or can not be accounted for in deficient movement of one or both sides, there is then a *suspicion of weakness*, to possibly elucidate which a more careful investigation is needed before accepting the risk.

Gentlemen, these are new points for life insurance examinations which I believe I have the honor to present for the first time. Whether their observance will shut out 10 or 20 per cent. of the consumptive mortality, which is now borne by the companies, I do not know, but I am sure they will account for many doubtful cases not usually made plain by an ordinary physical examination. These rules are the outgrowth of my personal investigations with the spirometer and manometer, samples of which are here presented as made for me by Messrs. Truax, Greene & Co. of Chicago.



DENISON'S SPIROMETER.

In the winter and spring of 1873, when, after pulmonary hemorrhages, night sweats, etc., I was myself health seeking in San Antonio, Texas, I met Dr. M. Slocum, a physician whose experience so well illustrates a plan I had already conceived that I will here relate his case: Some sixteen years before this time of my meeting Dr. Slocum he found himself a health

seeker in San Antonio, Texas, two years after his wife had died of consumption in New Orleans. For her health he had moved from the North to the South. Whether his was a case of infection or not I am not certain; but he was really in a serious condition, emaciated and having several hemorrhages in the streets of San Antonio, excited even by the effort of walking a block. He was also broken in finances, and naturally thought of utilizing the then present value, to the company carrying it, of his life insurance. He had a $5,000 policy on his own life in his wife's favor. I believe this was either in

a New York or New England company. Three of the best physicians in San Antonio critically examined him and made a written report of the facts, recommending to the company to pay Slocum at least 50 per cent. of his policy for its surrender. The company sought to parley with their man, and offered him $1,500. That was worth a thousand times as much to him living as to him dead, and he accepted the offer quickly, the more so as the indications were even then apparent of a disruption between the North and the South. He took this money and resolved that he would not go inside a house for six months, and kept his resolve. My oldest brother, then a resident of San Antonio, used to go out to Slocum's tent on the prairie to play chess with him under the mesquite bushes. Well, sixteen years afterward, when I met the doctor, he was clerk and recorder of Bexar county, a hale and hearty man of 160 lbs. weight, though his voice was yet husky and he relied considerably on stimulants.

It can almost truthfully be said it is not consumption that kills, but *worry*. The money the life insurance company sent saved that man's life. The officers of the company made a good bargain, and they need not reproach themselves because they did not hold on to that policy in order to save the over $20,000 which, in value to them, it would have amounted to if it had been kept in full force up to the time Dr. Slocum eventually died, about twenty-three years from the time the company made the settlement with him.

Was it not perfectly natural for me to ask, if this much good thus came to this man, why not to all insured under similar circumstances? Might I not have been insured myself, and the medical fraternity of my then home, Hartford, Conn., justly conclude that a hundred, such as I then was, would average to live not over three years, *i. e.*, to remain in the Connecticut valley. Now, twenty years afterward, when a policy on my life would have more than trippled itself in value, I survive and am permitted to disturb the contented insurance man with these vexing conundrums!

The country of southwestern Texas, New Mexico, Arizona, Southern California and Colorado is full of illustrations of this kind, so that it would be possible to assert with approximate accuracy, that classes of tubercular invalids who would have averaged to live two to four years, in their Eastern homes, have already lived from five to fifteen years in their newly chosen residences. The significance of this is plain enough when one considers that a prolongation of life nine years for a man of forty, doubles the value of his policy to the company holding it, through the incoming premiums and the use of the money which would otherwise have been paid out because of his death.

Twenty years ago I hoped to be able to present the exact data that would serve as a basis of this life prolongation, *i. e., a classified table of climates and classes of invalids*, together with the different longevities of these invalids, residing thereafter in the several climates. But over 3,000 physicians, carefully selected by prominent medical friends to represent the whole United States and Canada, to whom my circular of inquiries was then sent, had not the requisite uniformity of mental training, nor habits of studying or recording disease, to make their combined replies of real value. There was not then, and there is not yet among medical men, enough system of disease investigation nor uniform expertness in diagnosis to formulate *a table of disease longevities*. There is knowledge enough of both climate and consumption within the great body of medical men, but it is so often nullified by individual peculiarities, experiences and environment, that collectively it is practically valueless. Success must come largely from individual effort and proficiency. This conclusion brings us to the most important and final part of my paper. The remedy for professional incompetency lies in some appropriate system, and a better familiarity with every diagnostic means. The system which I here present may not be the one in all its features which will be eventually endorsed by the medical profession as the best, but it is very much better than none at all.

"*The Chest Diagnosis Chart* and aid to climate selection," which is the main feature of this plan is the outgrowth of much study. By a two years' use it has enlisted my confidence. It tends to avoid the omission of any important part of a critical clinical or physical examination. It stimulates accuracy in defining and graphically illustrating thoracic disease. It favors an earlier detection of enfeebled or diseased states, through this accurate association of changed physical conditions. It refreshes and strengthens the memory as to previous investigations of a given case. The chart has been submitted for criticism and correction to some of the leading physicians in the United States, and very generally received their approval. The severest criticism is thought, by two distinguished physicians, to be the great difficulty in

getting the ordinary physician to go into the amount of detail required to properly fill out the document, and also his natural hesitancy to make any kind of an exact statement as to internal chest conditions. If this criticism is just, it is one of the greatest commendations the chart could receive. Accuracy and truth can nowhere be of more value than in regard to diseased conditions within the human body, and that means, be it a diagnosis chart or a professor of physical diagnosis in a medical school, which will teach the ordinary physician *to know what he says and say what he knows*, is a great blessing to humanity.

Let it be understood, if you like, that the practice of such innovations will hardly be established among the older men in the profession, who are almost unchangeably fixed in their ways of investigating and combating disease. It is the younger men in the profession whom I hope to gain as friends and colaborers in this new field. I would that every teacher of physical diagnosis in the land would do with his students as I have and shall hereafter do with mine; namely, drill them in this system of clinical research and physical diagnosis, and present them with copies enough of some such a chart as this that they will get into correct habits of recording their chronic cases at the start of their professional career. As to the too little interest among physicians to attend to the required detail, a knowledge on the part of the public of the benefits to result will bring a healthful demand for such services. However trivial, prolix or exacting an ordinary life insurance examination may be, the details are all attended to before the application is considered complete. This influence in favor of accuracy as to detail gives me the strongest hope for the chart's utility. What a wonderful educator of the medical profession such an agency would be, if adopted and generally utilized by all the great life insurance companies! All this increase of labor on the part of medical men would be in the direction of greater proficiency in the diagnosis and description of disease. Besides it would be productive of more uniform and correct information of the healing effects of different climates than obtains at present.

The chart is here presented for your inspection, with the directions for its ordinary and special uses printed on the first page. Besides its use for preserving a record in chronic pulmonary cases, directions are given for carrying on a consultation between widely separated physicians, and for an intelligent inquiry as to the suitableness of a given climatic change, before a suspected or known invalid undertakes a journey to a distant health resort. The plan I should like to see the life insurance companies adopt, and one I am sure they could afford to carry out with great credit and profit to themselves, is as follows:

Each company uses its own force of selected medical examiners, or if preferred designates a smaller force of physicians, skilled in physical diagnosis, to represent the principal centers where their policyholders reside. Besides these they designate their own *expert referee physician or physicians;* perhaps one specially skilled in the climatic treatment of respiratory diseases—at the headquarters of the company or elsewhere—or several such representing most prominent health sections of the country. The company then notifies all its policyholders that under specified premonitory or actual symptoms of disease, such as pulmonary hemorrhage, night sweats, progressive wasting of flesh, etc., they will send the chest diagnosis chart, have a critical inquiry made by their chosen local and referee physicians and return the written report and advice of these physicians for the policyholders' benefit and final decision. The company may do less, or even more than this much. One physician suggests that the company should have a reëxamination of all their insured at stated periods; another that all impaired lives only need be so reëxamined. The company, however, could well afford to promise to loan the insured a given per cent. (based on his disability), of the amount named in his policy at a small rate of interest, in case this aid was needed to help bear the expense of the advised change of climate or occupation. The applicant, with all these benefits so well and gratuitously furnished him, should not and probably would not refuse to obey the proffered advice. The company would reap the reward in the resulting prolongation of life. This return would be great for the outlay, according to how early in chronic lung affections the needed change would be inaugurated. The longer it is before the breaking down of lung tissue, the better. Hence the great advantage of an *early* inquiry like the one here proposed. If, as statistics prove there are over 100,000 who die annually of consumption in the United States, and 200,000 who are already more or less affected for every 100,000 who die, the proposition is how to reach the new cases so that they will average eight to ten years of life thereafter, instead of only two.

Gentlemen, I see no objection on the part of our profession to this plan for the enhancement of life assurance's utility. But I must tell you that some seventeen years ago the president of one of our largest life companies accepted this scheme practically as here stated, but the plan was vetoed by his medical department because "it would not do," they said, "to take away patients from the men the department depended upon to do their examinations, and send these policyholders away to a distant climate that their lives might be prolonged."

It remains for you, gentlemen, to say if this imputation is not a libel ou your good name as honorable physicians, always seeking the best welfare of your patients.

This whole matter is now presented in a form which, I trust, will meet your approbation, and coming to public light through you, representative men of the medical profession, is freely and unreservedly given, with the hope that this method of recording cases, and this beneficent plan for life companies, will receive your hearty endorsement.

In conclusion, I crave your indulgence for this fragmentary treatment of so many questions, each of which is of importance enough for a separate thesis. This method of presentation seemed to be warranted by the mutual interdependence of these various interests.

I shall be gratified if even this much shall prove a help to those who will hereafter take up the work and more completely present and elaborate the different phases of this important subject.

[After the reading of the above, a Committee of the Section of Medicine was proposed to "consider the suggestions embodied in the essay." This committee reported: "That the adoption by the medical profession of a definite and comprehensive plan of recording, with explicit and accurate statement, the results of examinations of persons affected with chronic pulmonary disease, as proposed by Dr. Denison, is a consummation earnestly to be desired, since it would be conducive to the early recognition and to the prompt and effective treatment of such disease, and to a correct appreciation of its course and tendencies, besides affording the best possible basis of consultation between widely separated physicians."

The financial features, as to life insurance companies undertaking to aid their consumptive insured to seasonably profit by climatic change, etc., were advised "to be referred for their advancement to the physicians connected with each insurance company."]

THE CHEST DIAGNOSIS CHART.

AND AID TO CLIMATE SELECTION.

CHARLES DENISON, A. M., M. D., DENVER, COLORADO, Professor of Diseases of the Chest, and of Climatology, University of Denver, Author of "The Rocky Mountain Health Resorts," "The Annual and Seasonal Climatic Maps of the United States," Etc.

The objects of this examination record are, first and chiefly—To afford the physician a suitable means of **preserving the exact data** of his examinations in chronic pulmonary cases, and incidentally to foster among physicians the habit of accurateness and thoroughness in physical diagnosis.

Second—To furnish a basis of intelligent **correspondence** between widely separated physicians when a **consultation** is desired.

Third—To insure success and prevent useless expenditure on the part of invalids **journeying for health,** by intelligently canvassing the whole subject beforehand by means of this chart, which is meant to be a **physical photograph** of a patient's real condition, presented for the judgment of a physician expert in such matters.

Fourth—To present to Life Insurance and Beneficiary Associations a means for the early detection of respiratory and other associated diseases largely controlled by climate and a basis for **the prolongation of these lives** at a time when a more or less complete restoration to health is quite possible.

That is, to furnish a critical inquiry—(a) By a competent **Examining Physician** at or near the patients home. (b) By a **Microscopist,** if the sputum is to be stained and examined. (c) By a **Referee or Consulting Physician** in a distant city or health resort.

While no restrictions are placed on the use of this chart or system by any invalid, yet the family physician is most likely to first conceive the idea of a necessary change: therefore, if the attending or family physician makes the first examination, it is preferrable that the choice of Referee Physician, and the final acceptance of the plan proposed, be largely left to him. The Referee Physician, returns to the home physician (or to the patient, if so desired) his own written opinion, answers to questions, advice about living expenses, and such additional information, or published documents, (about climate, diet, exercise, etc.) as he thinks needed, and also if requested, this chart. Then the enquirer has **all the available facts** before him for his study, and for his own or his doctor's conclusions.

Additional Inquiries and Explanations.

(To be filled out by the patient or first examiner.)

The financial question—An important consideration is the ability of the enquirer to follow the advice which may be given. Under which head (1, 2, 3 or 4) is the patient to be classed?

1. Financially fully able and willing to live as required and devote himself to getting well,.....

2. Do what ever is best at moderate expense for one year or.....

3. After four months or sooner, if physically able, will be compelled to take up.....occupation. What outdoor work would he be willing to substitute?.....

4. Has no money and would be compelled immediately to depend upon his trade, herein stated, or upon.....for a livelihood.

.....

If the patient prefers, he, or his physician for him, can state his preference as to the climatic change to be made, giving his reason therefore, whether financial, social, business or pleasure.

The life insurance problem, if it is to be considered, requires—1. Does the patient desire the insurance company interested in his longevity to investigate the needs of his case, and does he intend, as nearly as possible, to abide by the decision reached?

.....

2. In what company or companies is the patient insured, giving age of policies and amounts?.....

.....

3. Would the financial aid of a loan secured by this insurance be needed in order to carry out any recommended trial or adoption of a new climate or change of life from that existing at present?.....

The examination fees—In the original examination the fee for such a critical diagnosis should be $5 to $10 or more, according to the custom of the examiner in such cases; depending also upon whether or not a microscopic examination of the sputum is made. The final consultation fee, if the Referee Physician gives a full written report of his own opinion, etc., should also be $10, which should accompany the request for consultation. Where, because of the limited circumstances of the applicant, the first examiner so requests, the fee of the Referee Physician may be considered as $5, as also when only the decision of a single question is desired not involving a consultant's usual responsibilities.

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THE CHART.

NOTE—In answering, those portions printed in light type can be written over; and all conditions are to be considered as NORMAL which are not otherwise specified, or elsewise in the chart shown to be diseased.

Examination made by Dr._____ P. O. Address,_____ 189

FAMILY HISTORY.

Patient's name?_____ Present address_____ Former residence?_____

Age?_____ Occupation?_____ Married or single?_____ Height, ft?_____ In?_____

Inheritance to Consumption or what chronic ailment?_____

Does patient resemble father or mother more?_____ Exposure to infection, explain if any probable?_____

Condition of health or life previous to present illness?_____

COURSE OF DISEASE.

Commencement, date and cause?_____

Times of severe sickness since then?_____

First appearance of night sweats when?_____ Blood spitting?_____ Profuse yellow expectoration? (2 to 4 ounces in 24 hours.)

After occurrence of night sweats, when?_____ Blood spitting?_____ Profuse yellow expectoration?_____

When, if at all, did dyspnœa commence?_____

Weight (pounds) in health, at best, when was it?_____ At least since sickness, when?_____ Now?_____

Changes in Residence since sickness and what periods?_____

Effect of such change or treatment?_____

Has health been better winters or summers?_____

Any experince in high altitudes?_____

Accustomed to what systematic exercise?_____

Sputum—Color?_____ Approximate quantity per diem in ounces?_____ Bacilli present?_____

When examined and by whom?_____ Skin moist, dry or sallow?_____

Afternoon Hectic?_____ Cough?_____ Pain, where?_____ Hands or feet cold?_____

Bowels formerly?_____ Now?_____ Hemorrhoids or any rectal trouble?_____

Patient's habits. Smokes?_____ Chews?_____ Use of stimulants?_____ Can walk how far without resting?_____

Appetite?_____ Digestion?_____ Any previous avoidance of fatty food?_____ Sleep?_____

Pulse, sitting?_____ Respiration_____ Temperature, F?_____ Time of day?_____ What daily range if known?_____

Spirometrical record, cu. in?_____ Manometer M. M.?_____

Complications?_____ Nervous state?_____ Kidneys and bladder?_____ Liver?_____

Women—Menses?_____ Childbearing?_____ Female disease, etc.?_____

(Any history of rheumatism, constitutional taint, glands enlarged or ulcerated, skin disease, or unusual drain on patient's vitality, as previous sexual excesses, explained here or by separate letter as desired.)

Nose and Throat.—Describe, if they exist, any obstruction to nasal breathing and the cause?_____

Any Rhinitis?_____ Otitis?_____ Pharyngitis?_____

Laryngitis?_____ Aphonia?_____ Hoarseness?_____

Locality and extent of any ulcers, tubercular or adenoid growths, etc._____

PHYSICAL EXAMINATION.

(Made on bare chest.)

Inspection—Emaciation?_____ Irregularities?_____ Depression?_____ Clubbed fingers?_____

Mensuration—Circumference inspiration in inches?_____ Expiration?_____

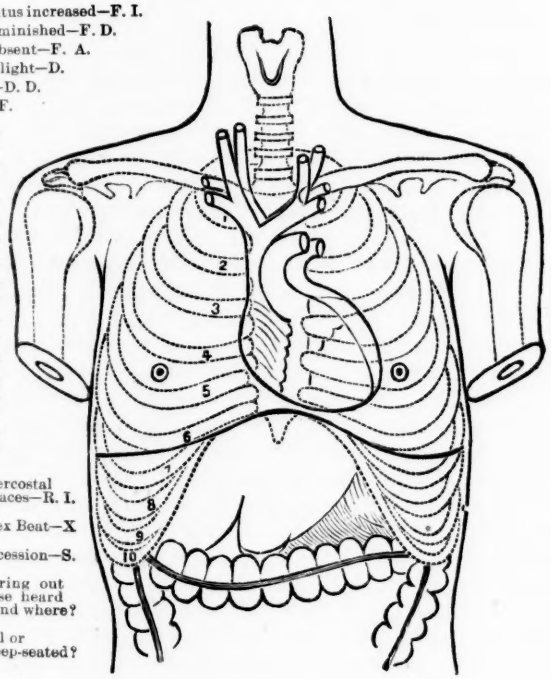
Movement—Measure of two sides—Right, inspiration?_____ Expiration?_____ Left, insp?_____ Exp?_____

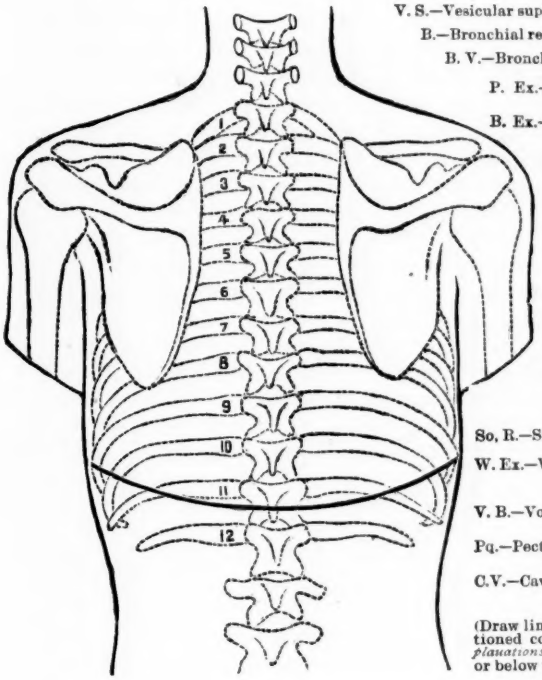
Heart—Normal?_____ Murmurs?_____ Size?_____

Lungs and Pleura.—Percussion, stethoscopic percussion and auscultation?_____

(Draw lines from signs named to diseased areas, or indicate by marking these abbreviation letters over the diseased spots or at the ends of lines drawn outward from them. Also encircle excavations—approximate size.)

Vocal Fremitus increased—F. I.
Vocal Fremitus diminished—F. D.
Vocal Fremitus absent—F. A.
Dullness, slight—D.
Dullness, decided—D. D.
Flatness—F.
Tympanitic Resonance—T. R.
"Cracked metal" on stethoscopic percussion—C. M.
Hollow sound on same—H. S.
Cavity—C.
Honey-combed—H. C.
Bronchiectasis—Br.
Pleuritic Friction—P. F.
Pleuritic Adhesion—Ad.
Pleuritic Effusion—Ef.
Retraction of Intercostal spaces—R. I.
Apex Beat—X
Succession—S.
Does coughing bring out rales not otherwise heard and where?
Are they superficial or deep-seated?





V. S.—Vesicular suppressed.
B.—Bronchial respiration.
B. V.—Broncho-Vesicular.
P. Ex.—Prolonged Expiration.
B. Ex.—Blowing Expiration.
C. B.—Cavernous Breathing.
C.W.R.—Cogged-wheel Respiration.
M. R.—Mucous Rales.
G. Gurgles.
C. R.—Crepitant Rales.
S.C.R.—Sub-Crepitant Rales.
Sib. R.—Sibilant Rales.
So. R.—Sonorous Rales.
W. Ex.—Whisper Exaggerated.
V. B.—Voice Bronchofonic.
Pq.—Pectoriloquy.
C.V.—Cavernous Voice.

(Draw lines to any unmentioned condition from *explanations* to be added above or below these diagrams.)

Diagnosis:_____

Treatment, climatic change recommended, etc. _____

ADDRESS ON STATE MEDICINE.

Delivered before the American Medical Association at the Forty-fourth Annual Meeting held at Milwaukee, June, 1893.

BY WALTER WYMAN, A.M., M.D.

SUPERVISING SURGEON GENERAL OF UNITED STATES MARINE HOSPITAL SERVICE.

(*Concluded from page 27.*)

A uniform quarantine code for the maritime ports of the United States has long been the desire of quarantine and sanitary officers, and heretofore all attempts have been futile.

A board of officers of the marine hospital service was summoned to prepare a code. After the rules and regulations had been prepared and before adjournment of the board, a conference was called of the quarantine officers of the Atlantic and Gulf coasts representing the cities and ports of Portland, Boston, Providence, New Haven, New York, New Jersey, Philadelphia, Wilmington, Del., Baltimore, Norfolk, Wilmington, N. C., Charleston, Savannah, Florida, Mobile, New Orleans and Texas.

This conference was called to order the 16th of March and remained in session two days, the first day being devoted to a consideration of the rules which had been prepared, and discussion thereof, with the understanding that there would be no vote. The second day the rules were again read seriatim, discussed and voted upon. After adjournment of the conference, the board continued its labors paying special attention to the views expressed in the conference. The rules thus perfected were then promulgated by the secretary of the treasury, April 4, and a letter enclosing them was sent to each maritime quarantine officer, calling attention to the law and to the fact that these were minimum requirements and requesting an expression of willingness and ability to execute them. Satisfactory responses have been received from all ports. These regulations relate first, to inspection of vessels, stating what vessels shall be inspected, the time of inspection, and the method of making it. They define the quarantinable diseases; and declare under what circumstances vessels shall be placed in quarantine. They relate also to the treatment in quarantine, particularly of vessels infected with cholera and yellow fever, and the time of detention and care of the passengers arriving on such vessels. Special regulations exist with regard to rags; also with regard to vessels *suspected* only of being infected with yellow fever.

As a further protective measure with reference to cholera it may be stated that on the appearance of this disease in any maritime port, a system of immigrant train inspection will be at once set in operation, medical inspectors to accompany each train from that port into the interior and provision made for the removal and care of the sick en route.

FOREIGN.

But while we have thus erected our sanitary fortification upon the coasts and have provided the means for *internal* warfare against epidemic disease, our duty is not yet accomplished. The danger of the attack should be eliminated. The sense of the American people should be aroused to an indignant protest against the approach of these diseases from other lands. Not one of them is indigenous. Cholera comes from India and Arabia, yellow fever from Havana and other ports of Cuba, and from Central and South America; typhus fever comes from Russia and occasionally from Germany. It is time that a vigorous protest should be made to the governments of the countries where these diseases flourish. Every nation should be held responsible for any conditions within its border or within its dependencies which tend to propagate epidemic disease that may be carried to other nations with which it expects to maintain a friendly commerce.

Is it too much to expect that the *fons et origo* of cholera in India shall be eliminated? But before discussing cholera in its home, consider a moment one of the chief means by which it finds egress therefrom. I refer to the religious pilgrimages.

In Mesopotamia are four Shiah shrines, the most sacred, Karbala, being the place of pilgrimage for large numbers of Shiahs from both India and Persia. Thousands of bodies from India and Persia and other countries where the Shiah faith exists, are brought here by the pilgrims for interment. The place is one vast burial ground and cholera raging is carried back to their respective countries by the pilgrims.

In Mesopotamia also is the holy city of Islam where the Mohammedan sect known as the Chitty send their dead for burial. In 1889 cholera was imported there from Bombay in the clothing surrounding the dead sent from Bombay for interment. Besides Karbala and Islam in Mesopotamia, Hurdwar in India, and Mecca and Medina in Arabia, are great foci for the development of epidemics which diverge therefrom in every direction.

In 1890 there arrived by the sea at Jedda and Yembo, the seaports of Mecca and Medina in the Red Sea 43,000 pilgrims, of whom 28,000 only returned; the balance representing the victims of cholera.

Why should the whole civilized world be allowed to suffer through the constant dread of invasion, or invasion itself of cholera, on account of the religious fanaticism of the Mohammedans of the East? Why should the civilized nations of the world continue to look complacently upon these pilgrimages to Mecca with their horrible accompaniments of constant disease and death? Death while en route to the shrine at Mecca is welcomed by all true followers of the prophet as a certain passport to eternal bliss! So long as this religious theory affects themselves alone, it might be viewed with complaisance, but when it involves the health and the lives of thousands of others to whom such a thought is a very absurdity, it is the right as well as the duty of those others to protest. This subject has no longer a faraway aspect. Steam has brought us into closer connection with Mohammedism. All nations are incomparably nearer to one another than twenty-five years ago, and the welfare of the most distant places on the face of the earth has now a direct bearing upon our own health and lives. The Mohammedan pilgrimages are a subject for international arbitrament.

What pressure can be brought to bear upon the Turkish or other government, to strip these pilgrimages of their disease bearing features, is a subject for immediate consideration, but one that will require careful study on the part of those versed in diplomatic relations. But when it is remembered that the vessels which carry these pilgrims, and upon which this disease breaks out, are owned by other nations it would seem entirely practicable to establish restrictive measures. I know that some of Eng-

land's vessels carry these pilgrims, as well as vessels of other nations. Are not these vessels, therefore, and the governments under whose flags they sail responsible in great part for the spread of this horrible plague?

Again, with regard to the harbors of the West Indies and South America, yearly menacing our coast—should not some pressure be brought on their governments to place them in sanitary condition? Ask of the men who, year by year, stand upon the quarantine piers of our southern cities and greet the vessels as they come from these infected ports, who remove to hospital the crew or passengers stricken with yellow fever, who clean and disinfect the ships, and whose minds in addition to the bodily activity required are strained from May until November lest through some chance oversight of their own, the terrible contagion of yellow fever may pass their outport and strike the coast of the United States. Despite the exemption of the last few years yellow fever is the prevailing thought throughout the south during this period. The quarantine officers, the physicians, the commercial men and the daily press are on the *qui vive*, watchful, anxious. Why? Because, forsooth, our neighbors are content to live with an indifference to sanitation, life and health unknown within our borders.

In connection with the extermination of the source of epidemic disease should be mentioned the recent brochure of Dr. J. Telyafus, of Tiflis, Russia, who has expressed his views upon the means of strangling cholera in its Indian home and thus freeing Europe and America from the constant menace of its periodical excursions. I quote from a recent review:

"Dr. Telyafus takes this exception to the opinion that any attempt to exterminate the germs of cholera in Indian is utopian. He states that it has been stamped out in the Nile delta, and that similar, or more energetic measures, would be equally effectual on the banks of the Ganges. Formerly the fellaheen of Egypt interred their dead on the banks of the river Nile, and the bodies were then washed out into the stream during the annual overflow of the river, and were carried down to spread disease throughout the delta. Since an end has been put to this custom, the plague no longer harasses the country. While it would be difficult, if not impossible, to restrain the natives of India from casting their dead into the waters of the sacred Ganges, it might be possible to compel them to cremate their dead and throw the ashes, if they will, on the border of the river. Drainage and the planting of the eucalyptus tree, while an enormous undertaking, is one, in the opinion of Dr. Telyafus, not impossible; similar work having been already accomplished with profitable results in Algiers."

THE EFFECT OF IMMIGRATION ON THE PUBLIC HEALTH.

A most important subject for consideration at the present time is the effect of immigration on the public health. So far as *epidemic disease* is concerned it is superfluous to call attention to the menace thereof accompanying immigration; and the measures taken to meet this danger, and the one held in reserve, prohibition, have already been described.

Concerning the other contagious diseases, not ordinarily epidemic, there is no doubt also of the increased liability thereto in the United States from this same cause.

Recently a cablegram was received from the medical officer detailed at Naples that nine ships would leave within ten days, carrying 11,000 immigrants. They are arriving at New York now at the rate of 15,000 a week—each week a new city's population grafted on the nation!

This wonderful movement of the earth's inhabitants during this latter part of the nineteenth century presents many phenomena of striking interest to the sociologist, and many problems to the sanitarian.

Where do they come from, why do they come, and what is their ultimate condition? From the standpoint of the sanitary officer it is difficult at this time to see aught but danger in this movement, or to have any other wish than that it might be stopped.

But if we may rise above our present fears and consider the subject from a very broad standpoint which commands an international as well as a national or local view, we may see in this movement a blessing to humanity not only political and intellectual, but physical as well.

Pressed out from their narrow confines, these people in swift moving columns and in swift moving ships are landed on our coast; they separate, and are almost lost to view in our vast expanse of territory.

Forced out of overpopulated districts either by a Russian decree or by their own appreciation of their unfortunate surroundings, they seek the United States as a land of promise, and in their broader surroundings and breathing the political life of a government of the people by the people, a broader and more intelligent manhood *must* be theirs.

First impressions are lasting, and the opportunity therefore is great to impress upon this large and constant addition to our citizenship a profound regard for the laws of public health in their new homes.

At the foreign port of departure the immigrant to-day receives his first sanitary impression of the new world as he presents himself for scrutiny by the medical officer of the United States government before being permitted to board his ship.

Again must he pass a quarantine officer at the port of arrival, and once more at the immigration station be closely and individually scanned or catechised by the medical inspector.

How can he fail to be impressed, to some degree at least, with the importance attached to health in the United States?

On arriving at his destination in the State chosen for his permanent home, he is the better prepared to accept such restraint or obligations of a sanitary nature as may be imposed by a local or State board of health.

There is opportunity, therefore, for each board of health to build up within the borders of the State a tolerance and respect for sanitary laws.

Nor is the effect upon the overpopulated districts in Europe to be lost sight of. Surely the relief in some communities must be obvious.

Moreover, statistics prove that thousands of immigrants revisit their homes. The sanitary teachings of the new world go with them and can not be without effect.

We can not forget, however, that while the physical condition of the immigrant is improved, and th sanitary condition of the locality he has left, th same can not be said of our own domain and people

and greater stringency both in the laws and their execution is demanded.

THE NON-EPIDEMIC CONTAGIOUS DISEASES.

Of the contagious diseases not ordinarily epidemic in character, but which are actually the more destructive to human life (as diphtheria, scarlet fever, typhoid fever, measles and tuberculosis), it may be said that with the exception of one (tuberculosis), the means of preventing their spread is so plain that it is within the power of every community to accomplish it.

While therapeusis is an indispensable antagonist to these diseases, their subjugation will be accomplished only by a triple alliance of *law*, *organization* and *disinfection*. Gradually the laws are spreading throughout the United States and municipalities, requiring notification, placards, disinfection and construction of special hospitals. Within a year even the White House has been placarded for scarlet fever, furnishing notable illustration of cheerful compliance with the law which may well be considered by those who would oppose it.

Sanitary plumbing and architecture, purity of water supply, proper disposal of sewerage and garbage, all are prominent subjects of town and municipal concern, and any community found indifferent thereto should be held up to public condemnation.

All sanitary organizations should be modeled after our national and State governments, embracing the three heads—legislative, executive and judicial. The framing of laws requires a skill and training apart from that required for their execution, and they accomplish their object more effectively when executed by others than those who make them, and back of them a wise judiciary preserves a just balance between the individual and the public.

Valuable adjuvants from time to time in municipal sanitation are the voluntary organizations called into existence by some particular threatening danger or by official laxity.

The most recent organization of this nature, formed because of the possible advent of cholera, and one which may be taken as an excellent model, is the Sanitary League of Washington, a full description of which will be found in the abstract of sanitary reports of this date.

DISINFECTION.

But with regard to the destruction of these domestic contagious diseases the keynote of success appears to be disinfection, and while the germicidal properties of the several disinfectants are known, still much depends upon their mechanical application—upon the mechanical devices for their distribution.

As stated by Dr. Cyen Edson, health commissioner of New York, whose experience in municipal and house sanitation is probably unsurpassed, the great difficulty in practical disinfection is in eliminating the personal equation; that is, on account of the carelessness or ignorance of individuals to whom are intrusted the actual work, their failure to comprehend its principles and to care for details, it is often inefficient.

Now this personal equation may be eliminated provided a mechanical device is found by means of which there shall be obtained a diffusion and penetration of the disinfecting gas equal to that of the germs of the disease.

Recently attention has been called to two new *forms* of disinfectants, which with especial mechanical devices promise to be among the most potent instruments in our sanitary armamentarium.

The first of these is a recent discovery produced by the action of an electric current, electrolyzing sea water.

Doubtless all the details concerning this agent will be published by its inventor in New York, but at present I can only say that the resultant solution contains germicidal and deodorizing properties of a remarkably high degree, while the cost is immeasurably lower than that of any known disinfectant permitting the application.

The second disinfectant is the anhydrous liquid sulphur dioxide. True, this has been known for several years, and experiments demonstrating its utility were made in the laboratory of the marine hospital at New York five years ago. But no device for its practical use has been offered till within a month, and it is but recently that placing it in the market for sanitary purposes has been seriously considered.

This liquid dioxide, confined in copper carboys of from fifteen to 200 pounds weight, may be easily transported, and simply by liberation will throw off the sulphurous acid gas, filling either a small room or the hold of a vessel with any required per cent.

A simple apparatus for carrying the gas cylinder from place to place, which at the same time can be used for weighing the gas liberated, has been recently devised by Passed Assistant Surgeon Kinyoun, and may be seen in the marine hospital exhibit in the government building at the Columbian Exposition.

The present difficulty with regard to this disinfectant is that its manufacture is a secret process, and the first cost of a plant large enough to supply the demand would be great. But it has been suggested that the general government might appropriately meet these two difficulties, and in doing so would confer a great benefit upon the country, for it could then furnish to local health authorities any amount of the agent in question, and at a cost that would permit its free use.

The object of the present paper will have been accomplished if it but serves to awaken interest in the possibilities suggested by its title.

Says Dr. D. B. St. John Roosa in the May number of the magazine: "Many of the illnesses that are thought to be special dispensations from Providence occur only because of the neglect of personal care.

"The time will probably come, however, when the human race will everywhere, with only exceptional instances, live out its life. It is perfectly possible to conceive of the domination of human intellect and human force being so universal as to abolish accidental deaths."

The day of this deliverance seems yet far off. We may not even claim to see the morning's rosy hue, but surely we *may* discern its first gray dawn and rouse to effort. The struggle is worthy of man's greatest powers, and even while striving we shall add great motive power to the upward progress of man toward his final destiny—whatever that destiny may be.

BLANKS for securing membership in the Association may be obtained by writing the Treasurer, Dr. R. J. Dunglison, Philadelphia, lock box 1274; or this office.

NECESSITY OF VOCAL PHYSIOLOGY AND SYSTEMATIC VOICE TRAINING IN OUR PUBLIC SCHOOLS AND COLLEGES FOR THE PREVENTION OF DISEASES OF THE LARYNX.

Address on Laryngology. Read at the Forty-third Annual Session of the State Medical Society of Pennsylvania, held at Williamsport, Pa., May 16 to 19, 1893.

BY J. WALTER PARK, M.D.

HARRISBURG, PA.

LATE CLINICAL ASSISTANT ROYAL LONDON OPHTHALMIC HOSPITAL, LONDON, ENG., SURGEON TO THE EYE, EAR, NOSE AND THROAT DEPARTMENT, HARRISBURG HOSPITAL AND CHILDREN'S INDUSTRIAL HOME,

The State Medical Society of Pennsylvania in 1883 passed a resolution that there should be annual alternating addresses on the subjects of ophthalmology, otology and laryngology, but for various reasons laryngology was omitted in 1889, hence the first and last address on this subject was delivered by my esteemed friend, Dr. Charles E. Sajous of Philadelphia, in this city seven years ago. In looking over his very able address, I notice he pointed out to you the importance and relationship of laryngology to the general practitioner, as well as some of the advancements in laryngology up to that time. I will endeavor to-day to give you a continuation of the advancements on this subject, but in a somewhat different line of thought, viz: the necessity of systematic physical voice training in our public schools and colleges for the prevention of some of our most prevalent diseases of the larynx. This subject has lately been considerably agitated by some of our most eminent specialists in England, France, Germany, Scotland, Ireland and America, and no doubt will sooner or later result in the systematic teaching of the proper methods of breathing and speaking in our primary schools and the systematic training of the voice in all academies, colleges, and higher institutions of learning. The object of this paper will be at least in a measure attained, if I can arouse sufficient interest in the medical profession in general, so that they will give this subject serious consideration, and advocate its principles among parents and heads of families, who have children attending schools and colleges, for by so doing good results are sure to follow. If the governing and controlling power of institutions of learning have their attention called to this subject by physicians and scientific men in general, quacks or charlatans can no longer impose upon the credulity of the public by traveling around through the country teaching false methods, etc., when most of them do not even know the first principles of systematic voice training.

Let us take the child in its infancy as an example to begin with; when it first begins to utter audible sounds it tries to imitate its mother, nurse, or teacher, and tries very hard to formulate sounds into intelligible speech. Years are required to teach a child to phonate properly. Parents should therefore devote a great deal of their spare time in teaching their children how to formulate sounds into words, and articulate them properly, for by so doing, they assist them in acquiring more easily and quickly which otherwise they would not acquire except by a great deal of extra hard labor. At the age of four to six years a vast amount of good can be accomplished by the parents previous to sending them to school, in the various breathing exercises and the proper method of pronouncing words, and to correct them for every slang phrase they may utter. When a child is sent to school it is generally taught the art of writing by the proper coördination of its muscles in using the hand, as well as the proper position of the body while at its studies. If we thus teach them the proper method of using the muscles of the hand and body, why should we not have a teacher of vocal physiology to teach them the proper method of breathing, by chest, nasal and respiratory exercises, opening and closing the mouth, the modulation of the voice, etc., pronouncing words properly while in the act of phonation? This training should begin in the primary schools, and be continued with the proper advancements in the art, as the child advances in its studies, and extended to the time it has completed its collegiate education. There are very few colleges to-day that properly train the vocal powers of their students, and as a result a good orator or elocutionist is seldom found among their graduates; and likewise there are seldom heard on the pulpit, the platform, the stage and at the bar, men who as specimens of physical voice training are able to hold their audiences or juries spellbound for an hour two by their fine oratory and not suffer hoarseness or fatigue of their vocal organs; that is the time they should have full control of the respiratory movements of their lungs, know how to attack words at a proper pitch of the voice, and how to control their vocal chords, etc., without producing fatigue and congestion of the larynx and pharynx, which always follows when not judiciously used. Violently exercising the voice in the wrong register, and in an improper tone of voice, must eventually produce physical harm or disease to some parts of the larynx.

The physician must first skillfully perform his duty in seeing that the pupil can perform the proper nasal respiratory movements, by examining his nose and naso-pharynx, and removing all adenoid vegetations, and treating any existing hypertrophic rhinitis, hypertrophy of the tonsils, as well as take notice if there are any existing anatomical malformations which might interfere with the development of proper articulate language. Stammering is most always a result of failure to observe properly and of improper methods of teaching a child. The naso-pharyngeal diseases just referred to are also occasionally causes. The physician and specialist should first call attention to and point out all defects in an anatomical, physiological and pathological point of view, and if possible correct any existing defects and then place the pupil under the care of the scientific voice trainer. Pharyngitis is often produced by spasmodic, jerky, respiratory movements while in the act of attacking a tone, and by not knowing how to economize the breath that is exhaled, thereby producing false, harsh and congested tones. Raising the pitch of the voice without raising the voice itself is another frequent cause of congestion of the larynx. The part that should be cultivated is the natural tone of the voice in which a person speaks with the least effort. Lenox Browne says, "the lungs are the motors of respiration; the larynx the vibrating organ, and the chest walls, trachea, pharynx and naso-pharynx the resonating apparatus." The French actor, Talma, always made a habit of speaking in his ordinary tone of voice behind the scenes to some of his fellow actors previous to appearing on the stage, so that he could maintain the same pitch

in his voice. This is an excellent habit for all clergymen and public speakers to form. Pharyngeal and laryngeal diseases would be an exception rather than the rule if this were universally put into practice. Madame Seiler says, "that if the physiology of the voice were better known and acted upon there would be but few complaining singers and speakers." There is no doubt that the solid basis of voice is a systematic and proper method of breathing; establish that first, and then begin the systematic training of articulate speech. Dr. Gordon Holmes describes the benefits of vocal culture as follows: "The general well being of the constitution is promoted by voice practice, because the wider chest movements accelerate the circulation of the blood, at the same time that they cause a more ample flow of fresh air in and out of the lungs. The obstacle to expiration offered by the contraction of the glottis during phonation confers a greater penetrating power on the pulmonary air, which perforce permeates the minute bronchi and distends the air vesicles of the lungs more effectively; thus the blood attains a higher oxygenation and greater purity, by which qualities it gains in power of stimulating the vital activities of the various tissues of the body as it courses through them. Effete matters are freely cast off, and new and wholesome material is assimilated in increased amount. The appetite, so to speak, of the various corporeal structures becomes more keen, and they are thus subjected to an exalted nutrition. And moreover, these effects have a certain permanency on account of the gains to the thoracic capacity, derived from the habitual increase of lung expansion necessitated by constant vocal exercise. Chest and laryngeal exercises in a systematic way accomplish some of the same results that are derived from a visit to higher altitudes, such as Texas, Mexico, Southern California, Colorado, etc.

The question is frequently asked at what age should a child begin to sing, or have its voice trained? Opinions differ materially on this question. Patti was taught systematically by her half brother, Barilli, and first appeared in concert singing at the age of seven years. She sang in concert with trained singers. Neilson was sent to "Wartel" when quite young. Jenny Lind was trained for the stage at the age of nine years, and (as is supposed) from forcing her voice, lost it at the age of twelve years, but regained it again at sixteen. Others who lost their voices in a similar manner, suffered from a paralysis of the arytenoid muscles of the larynx, or vocal ligaments. Manuel Garcia was her trainer after her recovery and the "Swedish Nightingale" soon became one of the world's most renowned singers. Listen to the child as it tries to sing one of its nursery songs; notice the tone and pitch of its voice, and you will soon be able to judge the voice compass; carefully watch it and see this compass is not exceeded by willful exertions on the part of the child. If it is, stop it at once; if not, allow it to go on by your assistance as much as possible, always careful that it wearies not in well doing.

You will notice from these remarks that there is no set time for a child to begin to sing, or have its voice trained. That question should be left for your teacher in vocal physiology, or voice trainer to decide.

Another mooted question is, whether a child should sing in concert or not. "Wartel" says if a child is possessed of a voice not worth keeping let it sing in concert. By analyzing carefully the opinions of a great many voice trainers we arrive at this conclusion: If a child has an exceptionally fine voice, which by special training would develop into an artistic one, never let it sing in concert until after it has been systematically trained and well developed in all the registers; it can not well go wrong after that. To preserve the sweet and natural tones of the child, to fit it for the stage, the platform, or the bar, it must be carefully and physically well trained when young, and it will develop into a sweet toned singer, or an eloquent and brilliant orator, and you will thus save many a child from some pharyngeal or laryngeal disease which it otherwise might have acquired by first singing in concert, previous to having any physical training. Many "might have been" famous singers are never heard, principally on this account.

If you thus carefully develop the delicate muscles of the larynx under the guidance of a scientific trainer, as the athlete trains the muscles of his body previous to entering the race, you not only assist in developing a nation who talk well and sing sweetly, but you assist in saving thousands of people from a premature grave to which they are otherwise inevitably doomed. Vocal physiology and systematic voice training are just as necessary as physical training is a part of the athlete's daily work.

I do not pretend to say that all who follow these suggestions will never suffer from a cold, a sore throat or an acute attack of laryngitis or pharyngitis at some time or another, but the probabilities are that 50 per cent. of the people who are obliged to consult the laryngologist now would not be obliged to do so were these suggestions rigidly enforced and observed. The most frequent and common ailments of the voice user from which one may suffer at some time or another are the following: catching cold, sore throat or relaxed throat, acute and chronic pharyngitis, chronic granular pharyngitis, elongated or relaxed uvula, tonsilitis, and acute and chronic laryngitis.

Having considered the physical necessity of vocal physiology and voice training, some remarks upon the daily life of the voice user, in order to assist in the prevention of laryngeal diseases, are quite applicable before closing this paper.

Most of our eminent authors say that a man's life is controlled, 1, by residence; 2, by ablutions; 3, by clothing; 4, by diet; 5, by exercise; 6, by amusements; and lastly, by individual habits.

1. *As to Residence.*—It is very important that a man or woman who wishes to preserve a good voice should live in well ventilated rooms. They should not sleep in the same rooms they occupy during the day. They should be ventilated by day as well as by night. Drainage should be perfect so as to prevent any exhalations from being inhaled, for its injurious effects are soon noticed upon a sensitive and congested larynx. Your residence should be situated rather high and have a southern exposure if possible. As regards climate, some require a dry and high altitude, while others feel best in a moist climate and low altitude. Some can live in smoky and dusty cities, while others must live elsewhere. This should be determined upon by the advice of your family physician and laryngologist.

2. *Ablutions.*—This is a subject much debated upon and yet no strict rules have been laid down. The following are among the best: Daily baths are generally advised. In cold weather take a hot bath, rub the body freely with a flesh brush and plenty of soap (a coal tar preparation is the best for cleansing the pores and promoting action of the skin); then sponge the body or douche it with cold water while standing in the hot, and dry the major part of the body before taking the feet out of the warm water. If there is any fear of perspiration you should lie between sheets for ten or fifteen minutes before dressing. The Turkish bath to the singer has this advantage; the inspiration of hot dry air which is so advantageous in counteracting the effects of cold, damp climates. It should be taken at least two hours after each meal. Put a wet towel on your head on entering the bath, to prevent heat stroke, palpitation, fainting, etc. Have the body shampooed lightly, and if perspiration is not active drink a glass of water. Wash the head as well as the body. Do not take a cold bath immediately afterwards, but douche first with warm water and have it gradually grow colder. Cool before dressing and keep the body and feet wrapped while cooling. Don't take a Turkish bath oftener than twice a week in winter, and once a week in summer. Cleansing the mouth and teeth with cold water before singing and speaking should be practiced regularly. Bathing the throat and back of the neck with cold water is commendable, as it renders the skin less sensitive to cold draughts of air and prevents one from catching cold easily.

3. *Clothing.*—A very great deal might be said upon so very important a subject, but I will merely touch upon some of the most important essential points: As is customary when going out to put on a wrap of some kind, in the same manner when entering a room be careful to remove it. Try to keep the temperature of your body equalized, no matter where you are or where you go. If upon the stage, and rather lightly dressed, be sure to use your wraps while waiting in the dressing rooms between the acts. The majority of singers and speakers should wear silk or flannel underwear the entire year, especially if they are inclined to suffer from rheumatism. Others think that underwear woven in combination suits, extending from the neck to the wrists and ankles, made of silk, gauze, merino and lamb's wool are the best hygienic underwear that can be worn. It is especially advisable to protect the organs of secretion where damp and sudden climatic changes predominate. Regarding the covering of the neck, no singer should wear a collar that buttons above the level of the top of the sternum. The high collar of the dude, the high and tight collars frequently worn by ladies, are a great hindrance to singers and public speakers; their tendency is to constrict the throat and prevent free movement of the laryngeal muscles, and produce congestion of the larynx and vocal cords, tonsilitis, etc., and materially interfere with all the movements of respiration.

4. *Diet.*—The two chief varieties of foods necessary to maintain life, are the nitrogenous and non-nitrogenous. The former are principally found in the meats and fats, and the latter principally in vegetables, starches, sugars, etc. Many vegetables and fruits contain nitrogen, such as apples, peas, white beans, etc., and for this reason vegetarians say we need eat no meats when all the nitrogen we need can be obtained from vegetables. Singers or speakers who do not take much exercise should eat meat sparingly, so as to prevent obesity. A singer should have an interval of about three to four hours and a speaker two hours between a full meal and the time they wish to sing or speak. Some singers or speakers become quite fatigued and tired out by the time they are half through with their evening's exercises; in such cases some beef tea or meat extracts between acts should be taken if possible; or what is still better, a raw egg seasoned with a few grains of salt and a few drops of vinegar swallowed whole fifteen or twenty minutes before using the voice, is an excellent tonic. This is exceedingly pleasant when the voice becomes dry from nervousness. Stimulants such as champagne, whisky, brandy and the malt liquors should be used very sparingly, for the reaction that follows their use is generally of such a character as to produce a congestion of the vascular supply of the pharynx, and more harm results from their use than the good that is accomplished. "Mariani" wine, made from the cocoa leaf, has many valuable testimonials from eminent actors and singers, but it also should be used with extreme caution, for we all know its active and exhilarating principle is due to cocaine, and who wants to become its slave? Avoid all foods that favor flatulence and have a tendency to interfere with the respiratory movements. All nuts and condiments, peppers, pickles, curries, etc., which have a tendency to stimulate the vascular supply of the pharynx and larynx. At meals tea, coffee and cocoa should be drank according to the taste and digestion of the person using them. As a rule they should be discarded. Numerous carbonated effervescing waters when pure are good. Kumyss is a very refreshing and stimulating drink. The light wines, such as claret, burgundy, and light Hungarian wines, after a hard day's work are refreshing and recuperative, but total abstinence from alcoholic stimulants of any kind is the best advice I can give you.

5. *Exercise.*—Speakers and singers should not neglect their walk in the open air for an hour or two every day. This exercise is frequently neglected for fear of catching cold, but by observing their manner of dress, exercising moderately and not violently, is an essential which should never be forgotten. A want of sufficient daily exercise soon tends towards corpulency, and congestion of the various organs of the body is liable to be the result, and interfere materially with the movements of respiration.

6. *Amusements.*—Swimming, shooting, skating, lawn tennis, fencing, etc., if practiced with moderation are all advantageous. Limit the extent of all amusements to the moment that fatigue begins; if extended to the stage of exhaustion, evil results often follow.

As to Habits.—Cigarette smoking is a pernicious habit, especially to singers and speakers. Tobacco in all its forms should be abstained from, principally on account of the inhalation of its fumes into the lungs, and its deleterious effects upon the heart, respiratory movements, and upon the pharyngeal and laryngeal mucous membrane in general.

Each of the main points of my subject might be dwelt upon far more extensively, but having touched upon the more prominent ones, I hope that some lasting and favorable impression has been made upon

your minds, and that you all may in some manner do your parts towards establishing a department of physical voice culture in our public schools and colleges, and by so doing save many thousands of human lives from a premature grave, by the prevention of many of our most common laryngeal diseases.

NECROLOGY.

James McCann, M.D., LL.D.

Was born fifty-seven years ago in Penn township, Allegheny county, Pa. His father served under Anthony Wayne in the war for American independence. In early boyhood he passed his summers working upon his father's farm, and the winter months as a pupil of John G. Beatty, who taught him, in addition to the public school curriculum of that time, Latin and the higher mathematics. At about thirteen years of age his father died, when he began teaching school, and became a leading member of a local debating society. Even at this early date he was a ready, fluent and earnest talker. Tiring of the monotony of country life and, like the majority of young men of his age, not knowing exactly what to do with himself, he decided upon a mercantile career, and at the age of eighteen came to Pittsburgh, where, after graduating at Duff's College, he spent several years as bookkeeper in a business house. This sedentary life became irksome to him, his health was not good, and acting upon the advice of his physician, who regarded him as a young man of promising talents, he finally decided to study medicine. With this object in view, he in 1858 entered the office of Drs. Thomas and John Dickson, Sr.

He graduated from the medical department of the University of Pennsylvania in 1863, and immediately entered the medical service of the army as assistant surgeon of the Fifth Pennsylvania Volunteers. He continued in this service until the close of the war, when he returned to Pittsburgh and began the practice of medicine with Dr. W. C. Reiter. Two years later he received the appointment of surgeon to the marine hospital, and the connection with Dr. Reiter was soon afterward dissolved.

He was next appointed one of the surgeons of the Western Pennsylvania Hospital, which position he held until a few months ago, when he resigned because of ill health, and accepted the appointment of consulting surgeon. For twenty years he has been one of the surgeons of the Pennsylvania, the Allegheny Valley, and other railroads entering this city.

He was an active and influential member of the Pittsburgh Free Dispensary from its inception, of the board of health for many years, of the Allegheny County Medical Society, of the State Medical Society, of the American Medical Association, of the American Surgical Association and of the American Association of Obstetricians and Gynecologists, but owing to ill health he was never able to attend a session of the latter.

In spite of the busy life he led, his ardent love and natural aptitude for teaching led him—in connection with his confrères of the "Mott Medical Club"—to undertake the arduous work of organizing the first medical college in western Pennsylvania. Into this work he threw all his enthusiasm, and devoted to it all his energy and influence. Caring but little for pecuniary reward, it was with him a labor of love. In September, 1886, he was elected professor of the principles and practice of surgery. This position he filled until a few months prior to his death.

DR. R. P. GORDON, of Hebron, Ky., who was crushed Tuesday evening, June 20, between a cable train and a wall of the La Salle street tunnel, died at the Alexian Brothers' Hospital. Dr. Gordon was asleep when the train entered the tunnel, and a jar threw him from his seat. He was a graduate of the Medical College of Ohio, class of 1887.

DR. THOMAS ANTISELL, of Washington, D. C., died June 14, 1893. He was born in Ireland, educated in Dublin, and a licentiate of the Royal College of Surgeons, 1839. He was for many years professor of chemistry in Georgetown Medical College, and during the civil war he had charge of one of the general hospitals at Washington. Professor Antisell had been in bad health for the last two or three years.

ARMY AND NAVY NEWS.

Army.

GENERAL ORDERS, No. 51.

HEADQUARTERS OF THE ARMY,
ADJUTANT GENERAL'S OFFICE,
Washington, June 24, 1893.

By direction of the Secretary of War, upon the recommendation of the Surgeon General of the Army, an Army Medical School will be established in the city of Washington for the purpose of instructing approved candidates for admission to the Medical Corps of the Army in their duties as medical officers.

The course of instruction will be for four months, and will be given annually at the Army Medical Museum, in Washington City, commencing on the 1st day of November.

Four professors will be selected from among the senior medical officers of the Army stationed in or near the city of Washington, and as many associate professors as may be required to give practical laboratory instruction in the methods of sanitary analyses, microscopical technique, clinical microscopy, bacteriology, urine analysis, etc.

The faculty of the Army Medical School will consist of—

1. A President of the Faculty, who shall be responsible for the discipline of the school and who will deliver a course of lectures upon the duties of medical officers in war and peace (including property responsibility, examination of recruits, certificates of disability, reports, rights and privileges, customs of service, etc.).
2. A Professor of Military Surgery (including the care and transportation of wounded).
3. A Professor of Military Hygiene (including practical instruction in the examination of air, water, food and clothing from a sanitary point of view).
4. A Professor of Clinical and Sanitary Microscopy (including bacteriology and urinology).

BY COMMAND OF MAJOR GENERAL SCHOFIELD:

R. WILLIAMS,
Adjutant General.

ARMY MEDICAL SCHOOL. SURG. GEN. STERNBERG SELECTS THE OFFICERS FOR ITS FACULTY.—Surg. Gen. Sternberg has completed his selection of the officers who will compose the faculty of the new army medical school to be established in this city. Col. Charles Alden, lately medical director of the Department of Dakota, in addition to his duties as deputy surgeon general, will act as president of the school. Lieut. Col. William H. Forwood, deputy surgeon general, now on duty at the District Soldiers' Home, will be professor of military surgery. Maj. John Billings, who is now in charge of the Army Medical Museum, will be professor of military hygiene, and Capt. Walter Reed, assistant surgeon, now on duty at St. Paul, will have charge of the microscopical work.

Navy.

The Army and Navy Register of June 24, 1893, says "Surgeon General Tryon has taken another step toward the formation of his school for instruction for Naval Surgeons at New York by securing the detail of Passed Assistant Surgeon D. M. Guiteras to duty as assistant to the director in charge of the naval laboratory and also as instructor in the new school. Medical Director Bloodgood, now in charge of the laboratory will retire in August and will be succeeded by Medical Director Wells, at present attached to the Naval Hospital in the city (Washington D. C.). The corps of instructors in addition to Dr. Guiteras will include the Naval Surgeons who are members of the Examining board at New York."

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JULY 8, 1893.

EDITORIAL CHANGE.

As heretofore announced, DR. J. C. CULBERTSON, for the past two years editor of this journal, has returned to Cincinnati and resumed editorial management of the *Lancet and Clinic*. THE JOURNAL editorial staff and the employés of the office extend to him their best wishes for his continued success.

The undersigned has been elected editor, and therefore tendered his resignation as trustee July 1, 1893.

JOHN B. HAMILTON.

THE VISIT OF MR. ERNEST HART.

The visit of the venerable editor of the *British Medical Journal* to America, and his meeting with the members of the American Medical Association at Milwaukee, are events worthy of mention. The cordial and enthusiastic welcome MR. HART has everywhere received is evidence of the friendly and fraternal feeling entertained in the United States for our British brethren, as represented in the person of MR. HART, scarcely less than for his own sake. To the Association and its JOURNAL the coming of MR. HART can not fail to be of advantage, for, by invitation of the board of trustees, he kindly appeared before them and explained in detail the method of conducting the *British Medical Journal*—a method whereby that publication has been raised from a weekly issue of 2,000 copies to 17,000 copies, and has now a position so secure that nothing can possibly overturn it.

When MR. HART assumed editorial charge of the *Journal*, it had been in existence fifteen years, and he was and is its eleventh editor. This was twenty-seven years ago, and in all those years MR. HART never once departed from his fixed policy to make the *Journal* "each week a journal of the week," and that the *Journal* was primarily "published for the benefit of those who *read*, rather than for the benefit of those who write."

When asked how best to improve our own excellent JOURNAL, MR. HART said that he thought its future lay in the direction of increasing the membership of the Association, and said in effect that as a stream could rise no higher than its source, so THE JOURNAL could not be much better or higher than the sources of its inspiration. Better papers, more condensation, and a larger waste basket would naturally follow a more extended membership. His own opinion was expressed that with so many more physicians in the United States than in any other country, we should have the strongest Association and the best journal. He could see no valid reason why THE JOURNAL should not speedily become phenomenally successful, if the members of the Association so willed it. The labor was great, but the reward would be commensurate.

The details of MR. HART's suggestions relative to the general management of the British *Journal* would be manifestly out of place here, but it is sufficient to say that they were instructive and interesting; being the mature judgment of one best qualified by experience to speak instructively on the subject.

If the members of the American Medical Association will act on the hint thus frankly given, and the Association become thereby stronger and more powerful each year, much will be due our distinguished friend, MR. ERNEST HART of London.

AIMS AND PURPOSES OF THE ARMY MEDICAL SCHOOL.

SURGEON GENERAL STERNBERG has recently obtained the sanction of the Secretary of War to a proposition that will be of inestimable value to medical graduates who may enter the army, and will, no doubt, have an important reflected influence on general medical education. Up to this year our young medical officers, assigned to duty as soon as appointed, learned by unpalatable experience that their medical curriculum failed to qualify them for the position of sanitary officers. Their knowledge of sanitary chemistry and bacteriology, of ventilation, heating, drainage, sewerage, plumbing, and kindred subjects, was by no means of that practical character that would warrant them in dealing as experts with questions that are of frequent occurrence in the army, where every point having a bearing on the physical well-being of the soldier is now submitted to the medical officer for his opinion and recommendation. The establishment of an army medical school has been authorized for the purpose of instructing approved candidates for admission to the medical corps in their duties as medical officers. The course of four months will comprise lectures on

their duties in war and peace, the care and transportation of the wounded, military hygiene, and clinical and sanitary microscopy, with laboratory instruction in the methods of sanitary analysis, microscopical technique, clinical microscopy, bacteriology, etc.

The young medical officer having shown that he has profited by this course, is assigned to a military post for duty. He can not, however, feel satisfied that he is yet secure in his position, for the examination for appointment which he has undergone serves only to select the individuals that are to be educated for the service. It admits the passed candidate only to a probationary service of five years as a lieutenant or subaltern, the first four months of which is passed at the school and the remainder on duty, usually under a senior officer of his department. At the end of this time an examination is required by law to demonstrate the fitness of the officer for promotion to a captaincy. The special subjects at this examination are those relating to the practical duties of a medical officer; as an officer of the army, and as an officer of the medical department; such as army regulations and orders, hospital corps, administration and drill, the organization and management of hospitals — post, field and general; the sanitation of camps and barracks, and the care of the wounded in battle.

Having shown himself to be an educated and well qualified military officer and sanitarian, his position may be considered secure. It is true, he has again to submit himself to the scrutiny of examiners prior to receiving his majority, but this investigation is usually restricted to determining whether he has kept up with the advance of professional knowledge; and this will hereafter be less of an ordeal for captains of the medical department than it has been, for the surgeon general has decided on placing those members of the corps who are in expectation of this examination on duty as attending surgeons in such cities as New York, Chicago, Philadelphia, Boston etc., where they will have opportunity of seeing city hospital practice and attending society meetings and lectures.

For many years it has been a grievance of medical officers that they are ordered up for examination after years of service at isolated posts where they have been completely removed from the current of medical progress. These gentlemen will appreciate GENERAL STERNBERG'S consideration for their professional betterment, and the educational standard of the corps must of necessity be improved by this arrangement, for the experience of the senior medical officers who have heretofore held these positions, will be utilized to better advantage at large military posts where it will be of benefit to the subaltern officers who are there serving.

After this examination for his majority, the relations of the army medical officer, if he have any, to examining boards become changed; he takes his place upon them, formulating his knowledge to play the rôle of examiner.

By this system the medical officers of the army will be kept up with the times in all matters of scientific and professional thought, instead of dropping into the ruts which so often confine the holder of a life position to the beaten tracks of a profitless conservatism.

THE ACTION OF ALKALIES ON HUMAN GASTRIC DIGESTION.

The frequency with which bicarbonate of soda is employed in gastric affections renders any contribution that enhances our knowledge of its action of interest to the profession. DR. G. LINOSSIER and Dr. G. LEMOINE have published in the June number of the *Archives Générales de Médicine* a valuable paper detailing the results of certain observations regarding the action of bicarbonate of soda and of carbonate of lime in a case of merycismus. Test meals consisting of 80 grams of bread, 80 grams of meat, and 250 grams of water were eaten by the patient, and every hour samples of chyme were obtained from the mouth into which it entered by the process of rumination. Under ordinary conditions in this patient the total acidity of the chyme was slightly pronounced, diminishing from the first to the third hour after a meal; the hydrochloric secretion was also sensibly inferior to normal, and all the usual tests showed that there existed a marked insufficiency of the gastric secretion.

The patient was then placed upon treatment of bicarbonate of soda, administered in doses varying from 7½ grains to 160 grains, and given in one of three ways: in the first, bicarbonate of soda was taken one hour before the test meal; in the second, it was taken at the commencement of or immediately before the meal; in the third, one hour after the meal.

Careful analyses of the gastric contents showed that bicarbonate of soda, in large or small doses, is an excitant of gastric secretion. The excitation of the secretion has for its first effect a saturation of the alkalinity that was always perceptible in the first analysis made after ingesting the drug in doses of 150 grains. When the dose of bicarbonate of soda is small the excitation occurs after the saturation of the alkalinity, and provokes a slight and transient increase of hydrochloric acid in the chyme. If the dose is medium the excitation is more prolonged, the maximum of the proportion of hydrochloric acid in the chyme being increased although attained more slowly. If the dose is strong the secretory energy of the mucosa is exhausted in antagonizing the alka-

linity and the normal proportion of hydrochloric acid may not be attained when the gastric contents pass into the intestine. The maximum proportion of hydrochloric acid in the chyme is attained in two hours after a dose of 7½ grains, in three hours after a dose of 15 grains, and in four hours after a dose of 75 grains.

The production of the organic acids of fermentation is favored by the administration of bicarbonate of soda; these acids with the hydrochloric acid contributing to saturate the alkalinity. Their production is also prolonged when the normal acidity is exhausted.

The excitant action of bicarbonate of soda on the gastric secretion is manifested in the greatest intensity when it is administered one hour before the meal; 15 grains acting as a feeble, 75 grains as a medium, and 150 grains as a strong dose. The first mentioned dose was the only one in the experiments that diminished the formation of the acids of fermentation.

At the commencement of a meal 7½ grains acts as a feeble, 15 grains as a medium, and 75 grains as a strong dose; though the soda given at this time suspends the secretion of pepsin.

Administered one hour after a meal the soda exercised a transient saturating action that was not followed by gastric excitation if given in doses of 30 grains; a more prolonged and exciting action being attained by a dose of 75 grains.

Carbonate of lime seems to act pretty much like bicarbonate of soda, as far as saturation of the gastric juice is concerned. A dose of 75 grains has seemed to be followed by a period of excitation, but the quantity of hydrochloric acid is not secreted in a free state as it is when the soda is administered. Furthermore, when the bicarbonate of soda has been administered for some time, its action is prolonged beyond the day when it was last taken; this action being explained by an excitation and prolongation of the secretory activity.

The administration of this drug is therefore indicated in those cases in which there is insufficiency of the gastric secretion (gastric hyposthenia), and it should be taken a certain time before the meal so that there may be a saturation of the alkalinity; and when the food enters the stomach it finds itself in immediate contact with a gastric mucosa in a state of secretory excitation. Prescribed just before meals it temporarily suspends digestion, provokes acid fermentation, and hinders the secretion of pepsin. In hyperchlorhydria, bicarbonate of soda may prove a double edged sword if employed during the time of digestion; because while very serviceable in diminishing the pain when it momentarily saturates the gastric hyperacidity, yet unskillfully employed there is the risk of increasing the secretory excitation of a mucosa already over excited. In such a condition it should be given in a small dose repeated as often as necessary to semi-saturate the acidity and to quiet the pain.

DOMESTIC CORRESPONDENCE.

Epidemic of Typhoid Fever.

To the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Doctor:—In compliance with your request of June 18, I return the newspaper clipping relative to the epidemic of typhoid fever in Ironwood, Mich., a town of about 12,000 inhabitants, and send the following statement on that subject:

I think the newspaper clipping is wrong in stating that "the city engineer had been obliged to leave the town in order to save himself from being killed." Probably it was the secretary of the water company, who has vigorously combated the idea that the disease was caused by the water supplied by the company. It is correct in stating that the armory has been taken for a city hospital, and that the schools are closed.

TYPHOID FEVER EPIDEMIC SPREADING.—*Eight Dying Daily at Ironwood, Mich., and the Physicians Incapacitated.*—Ironwood, Mich., June 17.—[Special]—The epidemic of typhoid fever is gaining ground. There are nearly 400 cases now, and during the last ten days the deaths have averaged eight a day. The armory and other available buildings have been turned into hospitals. All the schools are closed. Physicians are falling sick from overwork and loss of sleep, and patients can not get proper treatment. The city engineer has been obliged to leave the town to save himself from being killed by infuriated people who believe that his remissness is partly responsible for the present condition of affairs.—*Chicago Tribune*, June 18.

The health officer of Ironwood reported, for the week ending May 20, fifteen cases of typhoid fever taken sick, there having been no case reported at the beginning of the week; for the week ending May 27, thirty new cases; for the week ending June 3, thirty new cases; for the week ending June 10, 125 (estimated) new cases. Up to that time only six deaths were reported. June 11 and 12 I was in Ironwood, investigating the cause of the outbreak. The disease was so widespread and the onset so sudden that I had to look for some unusual cause of typhoid which commenced to act a few days previous to the occurrence of the first cases. Several alleged causes were urged by the physicians and citizens of Ironwood whom I interrogated: 1 the general water supply, which was obtained from a small stream, the Montreal river; 2, the water from wells, to which in years past the autumnal outbreaks of typhoid have been traced; 3, the digging of filth saturated soil for the laying of water mains and sewers; ; 4, the stirring up and removal this spring of great quantities of filth which accumulated during the winter; 5, the present filthy condition of some gutters and alleys; 6, atmospheric influences, alleged to have caused the fever in neighboring localities; 7, some influence connected with the Ironwood high school. No such sudden change in any of these conditions as would account for the epidemic was pointed out to me or could, at first, be found.

Having in mind the fact that typhoid fever is most frequently spread by means of the drinking water, I visited the pumping station of the general water supply, and at once noticed that recently there had been a very unusual overflow of the locality. Logs had been floated all around the building, and one rested near the reservoir for receiving the filtered water, and from which the water is supplied to the two cities, Ironwood, Mich., and Hurley, Wis. I noticed that the privy for the use of the engineer and family had been floated about, and not carried far down the stream, and the excreta under it had been nearly all washed away.

The water line showed that the water had been higher than the first floor of the pumping house, and within a few inches of the fire in the furnaces. I learned that the reservoir had been overflowed, that the intake pipe had been so clogged as to be useless for several days; it then being impossible to filter the water, a break had been made in the reservoir on the side toward the privy, which was on the down stream side but only about thirty-five feet distant, and the foul water of the overflow, probably contaminated with human excreta, allowed to fill the reservoir; and this was pumped into the mains to supply Ironwood and Hurley. As nearly as I could learn, this was between the 10th and 15th of May. The first person taken sick in this outbreak, was May 13. The greatest number yet officially reported were taken sick during the week ending June 10. It does not follow that all the cases were caused during the few days between May 10 and 15, because filth from the same source was contaminating the water in the reservoir as late as the last day of my visit, June 11. A sample of the contaminating water, sent by me to the State Laboratory of Hygiene, Ann Arbor, was reported by the director, Prof. Vaughan, to contain pathogenic microörganisms which caused the death of white rats into which they had been injected, the rats then having inflamed intestines and enlarged spleens, as did persons whom I saw sick at Ironwood.

My recommendation was that for the present all the water used for drinking and culinary purposes should be boiled, that the pumping station should be provided with filters having the capacity of at least three times that of the present plant, that no water should be pumped into the mains except it be filtered, that the reservoir for filtered water be cleaned out, cemented inside and out, so as to be water tight, that the stand-pipe and pipes throughout the city be emptied, and clean water pumped through to wash them out.

The stand-pipe was nearly emptied when I was there. Since my return I have learned that several tons of filth was found in the stand-pipe, including dead fish and crabs

Although this outbreak seems to have been caused by the general water supply, and the importance of disinfecting the typhoid excreta has been urged upon the inhabitants, it seems almost certain that the wells throughout the city will be contaminated and soon become a source of danger, especially in the autumn when the water becomes low, unless extraordinary efforts are made to prevent it. Hundreds of pamphlets such as I send herewith, have been sent to Ironwood from this office and are being distributed, in order to teach the people the modes of causation and restriction of typhoid fever; notices to *boil the water* have been posted up by the health officer, and it is earnestly hoped that the disease can be restricted.

Very respectfully,

HENRY B. BAKER, *Sec'y State Board of Health.*

MEDICAL PRACTICE ACT.

The New Medical Law of Pennsylvania.

AN ACT

To establish a Medical Council and three State Boards of Medical Examiners, to define the powers and duties of said Medical Council and said State Boards of Medical Examiners, to provide for the examination and licensing of practitioners of medicine and surgery, to further regulate the practice of medicine and surgery, and to make an appropriation for the Medical Council.

WHEREAS, The safety of the public is endangered by incompetent physicians and surgeons, and due regard for public health and the preservation of human life demands that none but competent and properly qualified physicians and surgeons shall be allowed to practice their profession;

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same:* That there shall be established a Medical Council of Pennsylvania, consisting of the lieutenant governor, the attorney general, the secretary of internal affairs, the superintendent of public instruction and the president of the State board of health and vital statistics, and the presidents of the three State boards of medical examiners provided for in this act.

SEC. 2. The said council shall be known by the name and style of the Medical Council of Pennsylvania, and may make and adopt all necessary rules and regulations and by-laws not inconsistent with the constitution and laws of this commonwealth or of the United States, and shall have power to locate and maintain an office within this State for the transaction of business. Five members of the said council shall constitute a quorum for the transaction of business.

SEC. 3. The said council shall organize at Harrisburg within ten days from the date of the organization of three boards of medical examiners, and shall elect from its own number a president and a secretary, who shall also act as treasurer, both of whom shall hold their offices for one year or until their successors are chosen.

SEC. 4. The members of the said council shall receive no salary, except the secretary and treasurer, who shall receive a salary of not over five hundred dollars, and who shall file with the president of the council a bond in the sum of one thousand dollars conditioned for the faithful performance of his duties. The necessary expenses of the said council shall be paid out of the appropriation made in section sixteen of this act, and any balance remaining from the appropriation after the disbursements herein specified shall be paid into the treasury of the commonwealth.

SEC. 5. The said medical council shall hold two stated meetings in each year at Harrisburg, and may hold special meetings at such times and places as it may deem proper. It shall supervise the examinations conducted by the three State boards of medical examiners of all applicants for license to practice medicine and surgery in this Commonwealth, and shall issue licenses to practice medicine and surgery to such applicants as have presented satisfactory and properly certified copies of licenses from State boards of medical examiners or State boards of health of other States as provided for in section thirteen of this act, or as have successfully passed the examination of one of the three State boards of medical examiners, but all such examinations shall be made by the State boards of medical examiners established in section six of this act. And the said medical council shall have no power, duty or function except such powers, duties and functions as pertain to the supervision of the examinations of applicants for licenses to practice medicine and surgery, and to the issuing of licenses to such applicants as have successfully passed the examination of one of the State boards of medical examiners, or have presented satisfactory and properly certified copies of licenses from State boards of medical examiners or State boards of health of other States as provided for in section thirteen of this act.

SEC. 6. It is further enacted that from and after the first day of March, Anno Domini one thousand eight hundred and ninety-four, there shall be and continue to be three separate boards of medical examiners for the State of Pennsylvania, one representing the Medical Society of the State of Pennsylvania, one representing the Homœopathic Medical Society of the State of Pennsylvania, one representing the Eclectic Society of the State of Pennsylvania.

Each board shall consist of seven members, and each of said members shall serve for a term of three years from the first day of March next after his appointment, with the exception of those first appointed, who shall serve as follows, namely: Two of each board for one year, two of each board for two years, and three of each board for three years from the first day of March, Anno Domini one thousand eight hundred and ninety-four.

The Governor shall appoint the members of said boards of examiners respectively from the full lists of the members of said medical societies which lists shall on or before the first day of January, one thousand eight hundred and ninety-four, and annually thereafter, be transmitted to the Governor, under the seal and signed by the secretary of the society so nominating. From these lists of nominees respectively, the Governor shall, during the month of January, Anno Domini one thousand eight hundred and

ninety-four, appoint three separate boards of medical examiners, each board to be composed exclusively of members of the same medical society. In case of failure of any or all of said medical societies to submit lists as aforesaid, the Governor shall appoint members in good standing of the corresponding society or societies entitled to nominate, without other restriction. Each one of the said appointees must be a registered physician in good standing, and shall have practiced medicine or surgery under the laws of this State for a period of not less than ten years prior to such appointment.

The Governor shall fill vacancies by death or otherwise for unexpired terms of said examiners, from the respective lists submitted by the said medical societies, and may remove any member of said boards for continued neglect of the duties required by this act, or on recommendation of the medical society of which said members may be in affiliation, for unprofessional or dishonorable conduct.

The Governor shall, in his first appointments, designate the number of years for which each appointee shall serve. The appointments of successors to those members whose term of office will expire on the first day of March of each year shall be made by the Governor during the month of January of each year, upon the same conditions and requirements as hereinbefore specified, with reference to the appointment of three separate examining boards, each to be composed exclusively of members of the same medical school and society as hereinbefore provided.

SEC. 7. Said boards shall be known by the name and style of Boards of Medical Examiners of the State of Pennsylvania. Every person who shall be appointed to serve on either of said boards shall receive a certificate of appointment from the Secretary of the Commonwealth.

Each of said boards shall be authorized to take testimony concerning all matters within its jurisdiction, and the presiding officer for the time being of either of said boards, or of any of the committees thereof, may issue subpœnas and administer oaths to witnesses. Each of said boards of examiners shall make and adopt all necessary rules, regulations and by-laws not inconsistent with the constitution and laws of this State or of the United States, whereby to perform the duties and transact the business required under the provisions of this act, said rules, regulations and by-laws, to be subject to the approval of the Medical Council of Pennsylvania established by this act.

SEC. 8. From the fees provided by this act the respective boards may pay not to exceed said income all proper expenses incurred by its provisions, and if any surplus above said expenses shall remain at the end of any year it shall be apportioned among said examiners pro rata, according to the number of candidates examined by each. Provided, That the Medical Council shall keep separate accounts of all fees received from physicians applying for licenses to practice medicine and surgery, and shall not devote any such fees to the uses of the council, or to the uses or remuneration of any other examining board than that of the society with which the physician who pays the fee wishes to be affiliated.

SEC. 9. The first meeting of each of the examining boards respectively, shall be held on the first Tuesday of April, one thousand eight hundred and ninety-four, suitable notice in the usual form being given with the notice of their appointment by the Secretary of the Commonwealth to each of the members thereof, specifying the time and place of meeting.

At the first meeting of each of the boards respectively, an organization shall be effected by the election from their own membership, of a president and secretary. For the purpose of examining applicants for license each of said boards of medical examiners shall hold two or more stated or special meetings in each year, due notice of which shall be made public at such times and places as they may determine. At said stated or special meetings a majority of the members of the board shall constitute a quorum thereof, but the examination may be conducted by a committee of one or more members of the board of examiners duly authorized by said boards.

SEC. 10. The several boards of medical examiners shall not less than one week prior to each examination submit to the Medical Council of Pennsylvania, questions for thorough examinations in anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, therapeutics, practice of medicine, and materia medica. From the lists of questions so submitted, the council shall select the questions for each examination and such questions for each examination shall be the same for all candidates except that in the departments of therapeutics, practice of medicine and materia medica the questions shall be in harmony with the teachings of the school selected by the candidate.

SEC 11. Said examinations shall be conducted in writing in accordance with the rules and regulations prescribed by the Medical Council of Pennsylvania and shall embrace the subjects named in section ten of this act. After each such examination the board having charge thereof shall without unnecessary delay act upon the same. An official report of such action signed by the president, secretary and each acting member of said board of medical examiners stating the examination average of each candidate in each branch, the general average and the result of the examination, whether successful or unsuccessful, shall be transmitted to the medical council. Said report shall embrace all the examination papers, questions, and answers thereto. All such examination papers shall be kept for reference and inspection for a period of not less than five years.

SEC. 12. On receiving from any of said boards of medical examiners such official report of the examination of any applicant for license the medical council shall issue forthwith to each applicant who shall have been returned as having successfully passed said examination, and who shall have been adjudged by the medical council to be duly qualified for the practice of medicine, a license to practice medicine and surgery in the State of Pennsylvania. The medical council shall require the same standard of qualifications from all candidates except in the departments of therapeutics, practice of medicine, and materia medica, in which the standard shall be determined by each of the boards respectively. Every license to practice medicine and surgery issued pursuant to this act shall be subscribed by the officers of the medical council and by each medical examiner who reported the licentiate as having successfully passed said examinations. It shall also have affixed to it by the person authorized to affix the same, the seal of the Commonwealth.

Before said license shall be issued it shall be recorded in a book to be kept in the office of the medical council and the number of the book and page therein containing said recorded copy shall be noted upon the face of said license. Said records shall be open to public inspection under proper restrictions as to their safe keeping and in all legal proceedings shall have the same weight as evidence that is given to the conveyance of land.

SEC. 13. From and after the first day of July, Anno Domini, one thousand eight hundred and ninety-four, any person not theretofore authorized to practice medicine and surgery in this State, and desiring to enter upon such practice, may deliver to the secretary of the medical council upon the payment of a fee of twenty-five dollars, a written application for license together with satisfactory proof that the applicant is more than twenty-one years of age, is of good moral character, has obtained a competent common school education, and has received a diploma conferring the degree of medicine from some legally incorporated medical college of the United States, or a diploma or license conferring the full right to practice all the branches of medicine and surgery in some foreign country. Applicants who shall have received their degree in medicine after the first day of July, one thousand eight hundred and ninety-four, must have pursued the study of medicine for at least *three* years, including three regular courses of lectures in different years in some legally incorporated medical college or colleges prior to the granting of said diploma or foreign license, and after the first day of July, eighteen hundred and ninety-five, such applicants must have pursued the study of medicine for at least four years including three regular courses of lectures in different years in some legally incorporated medical college or colleges prior to the granting of said diploma or foreign license. Such proof shall be made if required upon affidavit. Upon the making of said payment and proof the medical council if satisfied with the same shall issue to said applicant an order for examination before such one of the State boards of medical examiners as the applicant for license may select. In case of failure at any such examination the candidate after the expiration of six months and within two years shall have the privilege of a second examintion by the same board to which application was first made without the payment of an additional fee. And it is further provided, That applicants examined and licensed by State boards of medical examiners or State boards of health of other States on payment of a fee of fifteen dollars to the medical council, and on filing in the office of the medical

council a copy of said license certified by the affidavit of the president or secretary of such board, showing also that the standard of acquirements adopted by said State board of medical examiners or State board of health is substantially the same as is provided by sections eleven, twelve and thirteen of this act shall without further examination receive a license conferring on the holder thereof all rights and privileges provided by sections fourteen and fifteen of this act.

SEC. 14. From and after the first day of March, Anno Domini, one thousand eight hundred and ninety-four, no person shall enter upon the practice of medicine or surgery in the State of Pennsylvania unless he or she has complied with the provisions of this act and shall have exhibited to the prothonotary of the court of common pleas of the county in which or she desires to practice medicine or surgery, a license duly granted to him or her as hereinbefore provided, whereupon he or she shall be entitled upon the payment of one dollar to be duly registered in the office of the prothonotary of the court of common pleas in the said county and any person violating any of the provisions of this act shall be guilty of a misdemeanor and upon conviction thereof in the court of quarter sessions of the county wherein the offense shall have been committed, shall pay a fine of not more than five hundred dollars for each offense.

SEC. 15. Nothing in this act shall be construed to interfere with or punish commissioned medical officers serving in the army or navy of the United States, or in the United States Marine Hospital service while so commissioned, or medical examiners of relief departments of railroad companies while so employed or any one while actually serving as a member of the resident medical staff of any legally incorporated hospital, or any legally qualified and registered dentist exclusively engaged in the practice of dentistry nor shall it interfere with or prevent the dispensing and sale of medicine or medical appliances by apothecaries or pharmacists or interfere with the manufacturers of artificial eyes, limbs or orthopedic instruments of any kind from fitting such instruments on persons in need thereof, or any lawfully qualified physicians and surgeons residing in other States or countries meeting registered physicians of this State in consultation or any physician or surgeon residing on the border of a neighboring State, and duly authorized under the laws thereof to practice medicine and surgery therein, whose practice extends into the limits of this State provided, That such practitioner shall not open an office or appoint a place to meet patients or receive calls within the limits of Pennsylvania, or physicians duly registered in one county of this State called to attend cases in another county but not residing or opening an office therein. And nothing in this act shall be construed to prohibit the practice of medicine and surgery within this Commonwealth by any practitioner who shall have been duly registered before the first of March, Anno Domini one thousand eight hundred and ninety-four, according to the terms of the act entitled, "An act to provide for the registration of all practitioners of medicine and surgery," approved the eighth day of June, Anno Domini, one thousand eight hundred and eighty-one, and one such registry shall be sufficient warrant to practice medicine and surgery in any county in this Commonwealth.

SEC. 16. The sum of two hundred thousand dollars is hereby appropriated out of any moneys in the State treasury not otherwise appropriated for the salary of the secretary and treasurer of said medical council, and the necessary expenses of said council one thousand dollars thereof for the year beginning January first, one thousand eight hundred and ninety-four, and one thousand dollars thereof for the year beginning January first, one thousand eight hundred and ninety-five.

SEC. 17. All acts or parts of acts of Assembly inconsistent herewith shall be and are hereby repealed.

SELECTIONS.

ON A NEW FORM OF OSTEO-MYELITIS.—At the Society of Surgery, June 14, M. Berger reported the case of a young woman of sixteen years in whom chronic osteo-myelitis rapidly progressed to total necrosis of the bone, at the beginning of the menstrual epoch but with suppression. He was obliged to disarticulate the limb. The beginning showed itself by dull pain in the left humerus, very much increased during the day. The swelling came on slowly. There was not during the course of the disease acute febrile symptoms at any stage.

When the patient entered the hospital, there was noted a fusiform swelling and a deep fluctuation. On account of the continued absence of pain, osteo-sarcoma was suspected. Nevertheless, the diagnosis of osteo-myelitis was made. An incision carried through the periosteum, which was much thickened, gave exit to some pus. As there is no laboratory at the Lariboisière, no bacteriological examination of the pus was made. It was found that the bone was denuded throughout its circumference and nearly the whole length. Opening the medullary canal showed the lumen occupied by black marrow, and it was judged there was total necrosis. There was no pus. The operation was followed by a short febrile reaction, and ten days after there was spontaneous fracture. Immobilization was practiced, but soon the soft parts became infiltrated and blanched; there was considerable fever. It was then decided to disarticulate the humerus. The bone was comminuted and the fragments bathed in pus.

The foregoing case does not accord with the symptoms assigned to acute osteo-myelitis, which is always accompanied by acute heat. Chronic osteo-myelitis accompanied by hyperostosis, subperiosteal abscess, often developing at the menstrual epoch with suppression, and without local heat. —*Progrès Medical.*

TAMPONADE OF THE UTERUS.—Dr. H. C. Coe said: The profession has hitherto shown almost a superstitious fear of invading the uterine cavity—a fear which was fast passing away since we had learned that it was sepsis and not trauma that created most mischief in gynecological treatment.

The use of the intra-uterine tampon was indicated, first, to control hemorrhage: (*a*) from the non-puerperal womb after removal of growths; (*b*) from the puerperal uterus either after abortion or at term. Second, to prompt uterine contraction: (*a*) of the non-puerperal uterus after removal of growths, etc., the organ remaining, as in certain puerperal cases, in a state of subinvolution; (*b*) in puerperal cases where placing a foreign body in the uterus stimulated it more powerfully than astringent injections. Third, to promote healthy granulation of the raw surface after curetting. Fourth, to secure permanent dilatation of the canal in order to promote drainage.

He related briefly the histories of some cases illustrating the value of the uterine tampon under these various conditions. The first was a case of large sessile fibroid which he removed by the scissors, and controlled severe hemorrhage promptly by introducing iodoform gauze within the cavity. The second case was one of accidental hemorrhage during labor at term, to which he was called in consultation. The doctor had controlled the bleeding by keeping the hand within the uterus an hour and a half, but on removing it the bleeding recommenced. Dr. Coe was unable, on arrival, to feel the pulse. Gauze was introduced into the uterus and saline solutions were injected into the circulation. The hemorrhage was thus controlled, but the patient died after several days of pelvic peritonitis.

The next case related was one of endometritis fungosa, the hemorrhage from which was controlled for some months by curetting with the sharp instrument and applications of astringents. On the patient's return she was again curetted with the sharp curette, the cavity irrigated, a tampon of iodoform gauze was left in three days and replaced two or three times a week for two weeks by fresh gauze, after which the patient became pregnant.

The fifth case related was one of complete atrophy of the

uterus and post-partum hemorrhage. The child was taken out with forceps; the post-partum hemorrhage was controlled by introducing gauze, which induced contraction. The patient was in desperate condition, but made a good recovery.

Some seemed to think the gauze interfered with drainage and healing, but he was unable to understand the arguments on which the view was based. It was the cavity of the uterus, not the cervix, which was tamponed; only a strip of the gauze protruded from the os.

The gauze is kept in two forms; the one in pieces of good size for post-partum cases, the other in narrow strips for non-puerperal cases. In the former the gauze had to be put into the uterus by the handful at a time, while in the latter it was introduced by forceps. It could be safely left in two or three days. The same preparation of the patient and precautions should be observed as in abdominal surgery. Reference was made to the advantages of the gauze over stem pessaries, etc. It was unirritating, antiseptic, could easily be changed at one's office, etc.—*American Journal of Obstetrics.*

Europhen.—In July, 1891, Eichoff gave a favorable account of the action of europhen, which is the iodide of isobutylorthocresol. It is an amorphous yellow powder, with a slightly aromatic smell, not soluble in water and glycerin, but very soluble in alcohol, ether and chloroform. It is soluble too in collodion and oil. Eichoff reported a series of cases in which he had used it with great advantage in ulcers for the most part specific, scrofuloderma and lupus exedens. In some cases he employed simply powdered europhen, in others he used ointments of various kinds, containing usually 5 per cent. of europhen. No good consequence followed its use in gonorrhœa, psoriasis, parasitic diseases and urticaria.

He also injected a 1.5 per cent. solution of europhen in olive oil, each injection containing one-fourth of a grain. This gave rise to no pain or local troubles. After the injection of larger doses, patients complained of pain in the head and liver, and he advised that at first the smaller doses should be used, though afterwards the amount might be increased. The injections of europhen were chiefly used in syphilitic affections and lesions, and seemed to be of value.

In the *Therap. Monat.* for January, 1893, Eichoff points out that many observers have confirmed his views as to the utility of europhen. After further experience, however, he is inclined to abandon its subcutaneous use in syphilitic ailments, since the benefit it causes is only temporary, but as an external application in syphilitic soft ulcer he finds it of very great advantage. After washing the ulcer he applies the powder, covering the whole with wadding. Where the surface of the ulcer is raised, he first touches it with nitrate of silver. He points out that it must not be used with or soon after a sublimate solution, for then irritation is set up, owing to the iodide of mercury formed. In scrofuloderma and lupus exedens he used either a 3 per cent. ointment or the powder, and found cicatrization follow. It was of no service, however, where the lupus and scrofulous surfaces were more or less covered with epidermis. He says also that it is of use in the gonorrhœa of women with ulcerations in the vagina and on the cervix uteri.

He looks upon europhen, then, as a substitute for iodoform, over which it has the advantage of causing no injurious effects after absorption, and having no unpleasant smell.—*Medical Chronicle.*

Hydrastin in Epilepsy.—Kisseleff has studied the action of hydrastin in epilepsy, and after experiments upon dogs and guinea pigs, has arrived at the following conclusions:

1. The excitability of the cerebral cortex is lowered in proportion to the increase of the dose administered; but it will not fall to 0 cent., even with fatal doses of hydrastin.

2. Hydrastin possesses a cumulative action, and provokes a permanent lessening of the excitability.

3. While the excitability of the white matter was fully diminished, it was not so pronounced as that of the gray matter.

4. The paroxysms of epilepsy of guinea pigs are favorably influenced by hydrastin.

5. It has the same effect upon toxic epilepsy (produced by nux vomica or strychnia).

6. Hydrastin diminishes cerebral excitability of the cerebral cortex, and also in cases of intense cerebral hyperæmia artificially provoked.

From a clinical point of view, Kisseleff has obtained good results in some cases of epilepsy treated by hydrastin in doses of 5 centigrams a day, but the small number of cases observed does not permit us to form definite conclusions.—*Jour. de Med. de Paris*, June 18, 1893.

Obesity and Life Insurance.—M. Kirsch has examined the condition of obesity from a life insurance point of view, and has reached the following conclusions:

1. Medium obesity does not in general give a reason for refusal to give an ordinary policy of insurance.

2. If obesity is hereditary; if, in the antecedents of the family of the candidate there has existed saccharine diabetes or cerebral hæmorrhage the examiner should be very circumspect.

3. If the obesity is very great, more prudence is necessary, and the heart and the urine should be examined with extreme care, as a very obese man is like a colossus upon feet of clay. Irregularity of the pulse or pronounced slow heart are always very bad prognostics.

4. When great obesity coincides with chronic alcoholism the chances of life are very much reduced.—*Wiener Med. Presse.*

Valzine.—A chemist of Berlin has discovered a new substance, *valzine* which he thinks will replace saccharine. Its sweetening power is a little less than that of saccharine which is 300 times that of cane sugar. Valzine has only 200 times the power of cane sugar, but without any of the inconveniences that impair the success of saccharine. The origin and exact chemical composition of valzine are yet secret.—*Journal de Medécine de Paris* June 18, 1893.

MISCELLANY.

Change of Address.—Medical Director A. L. Gihon, U. S. N., to Naval Hospital, Washington, D. C.; Surgeon Chas. S. D. Fessenden, M. H. S., to Marine Hospital, Mobile Ala.

The Castor Bean in India.—(*Reports from the consuls of the United States.*) There are two chief types of the *ricinus communis*, but of each there are numerous modifications depending on the color, shape of leaves and presence or absence of spinous appendages on the fruit.

The one form is a tall bush almost a tree, a perennial, grown as a hedge or to afford shade around fields in which more delicate crops are being cultivated; it yields a large seed and an abundance of an inferior oil. The second is an annual plant, sometimes grown as a pure crop; it produces a small seed from which is extracted a superior quality of oil of commerce and pharmacy. The oil obtained from the former variety is largely used in India for illuminating purposes and is called "lamp oil."

The yield per acre of seed varies greatly in different sections. The estimated average is 500 to 700 pounds.

In Madras where the plant is extensively cultivated, sowing takes place in July or August, from 12 to 24 pounds of seeds being required for an acre. The seeds germinate in about a week, in the fourth or fifth month flowering occurs and in the sixth capsules are formed.

The following is the Calcutta process for the extraction of oil for medical purposes: The seeds are first cleaned

and then placed on a smooth board and each broken in two or three pieces by a flat, wooden mallet, to render separation of husks easy. A basket winnower is then used to remove the husk from the kernel. The latter are dried in the sun and afterwards broken by a crushing machine. They are next put in small canvas or gunny bags and pressed in the hand machine, the oil falling into a pan placed beneath.

The oil is collected in large galvanized iron vats and bleached by exposure to the sun which also causes the sediment to precipitate. It is next boiled; vegetable charcoal added and finally the oil is filtered through flannel or blotting paper.

The oil is manufactured for other purposes than for medicine and illumination. In Assam it is largely cultivated to feed the silk worm. An excellent paper pulp is made with the bark from the stems. It is used by Indian dyers for dressing tanned hides and skins; for lubricating all sorts of machinery, and perfumers make use of it in the manufacture of certain articles. It enters extensively into the making of varnish.

As a method of illumination it is highly valued for the excellent white light, the slowness with which it burns and its freedom from danger. The railways in India burn it and the soot it gives out is almost imperceptible.

BANEFUL BRANDY.—Walter T. Griffin (Reports from the Consuls of the United States) has given an account of the investigation instituted by Parliament, into the nature of the alcohols used in the manufacturing of beverages in France, and recommends, in the light of the astonishing revelations, the careful consideration of the analyses by American consumers. It seems that a much larger quantity of spirits has been used recently, especially by the poorer classes, on account of the shortage of the wine crops and consequent dearer prices of pure grape juices, and there has been likewise a great increase in the amount of drunkenness and insanity. Thus it was that the matter was called to the attention of Parliament by the Academy of Medicine and a committee of investigators appointed.

A large number of samples were procured from establishments of all classes of retailers, and after analysis every one had to be declared "dangerous and bad." Experiments made by Dr. Herst showed that of five samples of cognac taken from fine boulevard restaurants, where they were sold at a franc a glass, each one was injurious to health and all had been colored with caramel. Samples of brandy taken from less pretentious saloons, were in all cases found to contain common wood alcohol diluted with river water, colored with caramel and flavored with ether and vegetable substances. The examination showed that the alcoholic beverages sold to workingmen, like much too that is sent to the United States, contained impure wood alcohol, amylic acid, formic ethers, etc; the samples were sharp, caustic, burning and colored with caramel, vegetable matter and methylene.

PAN-AMERICAN MEDICAL CONGRESS—SECTION ON GYNECOLOGY AND ABDOMINAL SURGERY.—All members of the medical profession are cordially invited to attend the meetings of this Section to be held in Washington, September 5, 6, 7 and 8.

The sessions promise to be exceptionally interesting, many valuable papers having been contributed. Those who may wish to read papers before this Section and who have not yet sent in their titles and skeleton abstracts are requested to do so at once.

Papers have already been contributed by the following distinguished gentlemen from the United States and Canada: Drs. T. Johnson Alloway, Montreal, Can.; A. W. Abbott, Minneapolis, Minn.; J. M. Baldy, Philadelphia, Pa.; H. J. Boldt, New York city; Augustus P. Clarke, Cambridge, Mass.; Ernest W. Cushing, Boston, Mass.; Andrew F. Currier, New York city; L. H. Dunning, Indianapolis, Ind.; Geo. R. Deane, Spartansburg, S. C.; W. E. B. Davis, Birmingham, Ala.; Joseph Eastman, Indianapolis, Ind.; Geo. M. Edebohls, New York city; De Saussure Ford, Augusta, Ga.; William Gardner, Montreal, Can.; T. H. Hawkins, Denver, Col.; John R. Haynes, Los Angeles, Cal.; Edw. W. Jenks, Detroit, Mich.; Jos. Taber Johnson, Washington, D. C.; Howard A. Kelly, Baltimore, Md.; Florian Krug, New York city; G. Betton Massey, Philadelphia, Pa.; Lewis S. McMurtry, Louisville, Ky.; R. B. Maury, Memphis, Tenn.; Wm. F. Myers, Ft. Wayne, Ind.; E. E. Montgomery, Philadelphia, Pa.; Robert T. Morris, New York city; Chas. P. Noble, Philadelphia, Pa.; Jos. Price, Philadelphia, Pa.; Geo. H. Rohé, Baltimore, Md.; Jas. F. W. Ross, Toronto, Can.; Chas. A. L. Reed, Cincinnati, O.; I. S. Stone, Washington, D. C.; R. Stansbury Sutton, Pittsburg, Pa.; T. Algeron Temple, Toronto, Can.; A. Vander Veer, Albany, N. Y.; W. B. Ward, Topeka, Kan.

BROOKS H. WELLS,
71 West 45th St., New York city,
English-speaking Secretary.

W. W. POTTER,
Executive President.

THE PAN AMERICAN MEDICAL CONGRESS EXCURSION TO ROME.—It has been definitely determined that the Pan American Medical Congress excursion to the Eleventh International Medical Congress will sail on the steamship "Werra" from New York, September 9, the day following the adjournment of the Congress at Washington, and will arrive at Genoa, September 20, four days before the opening of the Rome meeting.

Round trip steamer tickets may be procured for $142.50 for inside rooms, and $150 and upwards for outside rooms. Tickets are good for members of the Congress and their families, and may be used at option of holder to return on any steamer of the line from Genoa, or on Saturday steamers from Bremen, or Sunday steamers from Southampton, during the months of October, November and December. Physicians desiring to avail themselves of this exceptionally low rate should at once become members of the Pan American Medical Congress by sending the registration fee ($10) to the Treasurer, Dr. A. M. Owen, Evansville, Ind., and informing the Secretary General, Dr. Chas. A. L. Reed, Cincinnati, of their intention to join the excursion. Passage should be secured without delay, as the trip, involving as it will, a stop at the Azores and Gibraltar, and a sixty hours' sail along the picturesque coasts of Spain, France and Italy, promises to be very popular. Many prominent European guests of the Pan American Congress will return on this occasion. The time allowed will afford American physicians an opportunity to not only attend the International Congress and visit Rome, but to extend their journey to the famous sanatoria of South France and the Riviera.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers serving in the Medical Department, U. S. Army, from June 24, 1893, to June 30, 1893.

Capt. Marcus E. Taylor, Asst. Surgeon, will report in person to the president of the Army Retiring Board at Ft. Logan, Col., when required by the board, for examination by it. By direction of the President.

First Lieut. Frank T. Meriwether, Asst. Surgeon U. S. A., is relieved from duty at Madison Bks., N. Y., and ordered to Ft. Logan, Col., for duty.

Capt. Louis A. La Garde, Asst. Surgeon, will in addition to his present duties in connection with the World's Columbian Exposition, furnish the necessary medical attendance for the officers and enlisted men of the army on duty at the Exposition grounds.

Capt. William C. Shannon, Asst. Surgeon, in addition to his duties in the office of the Surgeon General, is assigned to duty as assistant to the attending surgeon in this city.

Major Washington Matthews, Surgeon U. S. A., leave of absence granted is extended one month.

Capt. Freeman V. Walker, Asst. Surgeon, now on leave of absence at the Army and Navy Hospital, Hot Springs, Ark., will proceed at once to Ft. Trumbull, Conn., and report in person to the commanding officer of that post for temporary duty, relieving Major Henry M. Cronkhite, Surgeon. Major Cronkhite, upon being relieved by Capt. Walker, will proceed to Ft. Clark, Tex., and report in person to the commanding officer for duty at that post.

First Lieut. Alexander N. Stark, Asst. Surgeon, is relieved from duty at Ft. Monroe, Va., and ordered to Ft. Clark, Tex., for duty, relieving Capt. Edgar A. Mearns, Asst. Surgeon. Capt. Mearns, upon being thus relieved, will proceed to Nogales, Ariz., and report to the senior member of the commission appointed for the locating and marking of the boundary between Mexico and the United States, for duty with the commission.

Major John O. Skinner, Surgeon, having been found by an Army Retiring Board incapacitated for active service, the extension of leave of absence on surgeon's certificate of disability is further extended until further orders.

First Lieut. Benjamin Brooke, Asst. Surgeon U. S. A., is granted leave of absence for two months, to take effect on or about July 15, 1893.